MAZDA

Valves & Picture Tubes

DATA
BOOKLET
1966

YOUR MAZDA WHOLESALER

1966
DATA BOOKLET

MAZDA

VALVES AND
PICTURE TUBES

Maintenance Sales Dept.
Thorn-AEI Radio
Valves & Tubes, Ltd.
7 Soho Square
London, W.1

Telephone GERrard 5233
Telex 261680

Returns

Please avoid delay by sending all returned goods to the appropriate Service Depot (see back page 160) and

NOT THIS ADDRESS

Publication TAEI/M/2D

PRICES

Please refer to separate Mazda price list (TAEI/M1) obtainable on request from the address on this page.

RESALE PRICE MAINTENANCE

Mazda valves and tubes are sold to the trade upon the condition that they are resold to the public only at our current list prices plus the full amount of purchase tax applicable.

AVAILABILITY

Inclusion in this booklet does not guarantee availability. Most types are constantly available, but Mazda publish a Monthly Availability List for the use of Wholesalers. Retailers may now be added to this mailing list on request.

ADDITIONAL DATA

This data booklet has been compiled for use in maintenance work by the radio trade.
Full design data sheets are available free of charge on individual valve or CRT types. A complete design data Handbook may be purchased. Please see page 3 for details.

SEMICONDUCTORS

A separate Mazda Data Booklet is published for Semiconductors. Obtainable from the address on this page.

KEEP YOUR OLD MAZDA BOOKLETS

They contain more complete data on Obsolescent and Obsolete types than is included in this edition.

WPG. 50M 3/66 Printed in Great Britain

CONTENTS

NEW TYPES

These types have been added since the last edition

MAZDA VALVES

MAZDA PICTURE TUBES

KEY TO ABBREVIATIONS

RATING AND OPERATING CONDITIONS

AF	Audio Frequency
C_{res}	Reservoir Capacitance
EHT	Extra High Tension
f	Frequency
F.C.	Frequency Changer
F.W.	Full Wave
g_c	Conversion Conductance
g_m	Mutual Conductance
HF	High Frequency
H.W.	Half Wave
I_a	Direct Anode Current
$I_{a(av)}$	Mean Anode Current
$I_{a(o)}$	No Signal Anode Current
$i_{a(pk)max}$	Maximum Peak Anode Current
I_{g2}	Screen Grid Current
I_{g2+g4}	Screen Grid Current (frequency changers)
$I_{g2(o)}$	No Signal Screen Grid Current
I_h	Heater Current
$I_{k(max)}$	Maximum Cathode Current
$I_{out(max)}$	Maximum Output Current
I_t	Target Current
L	Length of Column (tuning indicators)
$p_{a(max)}$	Maximum Anode Dissipation
$p_{g2(max)}$	Maximum Screen Dissipation
P.I.V.-max	Maximum Peak Inverse Voltage
pk	Peak
P_{out}	Power Output
r_a	Valve Anode Resistance
R_a	Anode Circuit Resistance
R_{eq}	Equivalent Noise Resistance
R_{g1}	Control Grid Circuit Resistance
R_{g2}	Screen Grid Circuit Resistance
r.m.s.	Root Mean Square Value
R_{lim}	Surge Limiting Resistance
UHF	Ultra-High Frequency
V_a	Anode Voltage
$V_{a(b)}$	Anode Supply Voltage
$v_{a(pk)max}$	Maximum Peak Anode Voltage
V_b	Supply Voltage
V_{g1}	Control Grid Voltage
V_{g2}	Screen Grid Voltage
V_{g2+g4}	Screen Grid Voltage (frequency changers)
V_{g3}	Suppressor Grid Voltage
V_h	Heater Voltage
$v_{het(pk)}$	Peak Heterodyne Voltage
VHF	Very-High Frequency
$v_{h-k(pk)max}$	Maximum Peak Heater to Cathode Voltage
V_{in}	Input Voltage
V_{out}	Output Voltage
V_t	Target Voltage
θ	Deflection Angle
μ	Amplification Factor

KEY TO ABBREVIATIONS

BASE CONNECTIONS

a	anode
a′	anode of first section
a″	anode of second section
a‴	anode of third section
a_d	anode of diode section
a_t	anode of triode section
bp	beam plates
ct	centre tap
d	diode
f	filament
g	grid
g_1	grid nearest cathode (e.g. control grid)
g_2	second grid from cathode (e.g. screen grid)
g_3	third grid from cathode (e.g. suppressor grid)
g_t	grid of triode section
h	heater, heptode or hexode
IC	internal connection. This indicates that the pin is connected to an electrode for the purpose of improving mechanical rigidity. The connection may not always be made to the same electrode on a given valve type, and it is essential that the corresponding **valve holder socket be left unconnected.**
k	cathode
k′	cathode of first section
k″	cathode of second section
M	metallising
NC	no connection
NP	no pin
p	pentode
q	tetrode
s	internal shield
SC	side contact
t	triode or fluorescent target
TC	top cap

MAZDA

NOMENCLATURE FOR VALVES

SIGNAL VALVES

These have a three symbol name comprising a number, a letter or letter sequence and a final number.

First number indicates heater or filament rating,

1	1·4 V (parallel or series)
6	6·3 V (parallel or series)
10	0·1 A (series)
20	0·2 A (series)
30	0·3 A (series)

Following letter or letter sequence indicates class of valve,

C	Frequency changer with special oscillator section
D	Signal diode(s)
F	Voltage amplifier tetrode or pentode
FD	Voltage amplifier tetrode or pentode with diode(s)
FL	Voltage amplifier tetrode or pentode with voltage amplifier triode
K	Small gas triode or tetrode
L	Voltage amplifier triode or double triode including oscillator triode
LD	Voltage amplifier triode with diode(s)
M	Tuning Indicator
P	Power amplifier valve, tetrode or pentode
PL	Power amplifier valve, tetrode or pentode with voltage amplifier triode

Final number distinguishes between different valves in same class.

POWER RECTIFIER VALVES

These have a two symbol name comprising one or two letters and a final number.

Letters indicate class of rectifier,

U	High vacuum half-wave
UU	High vacuum full-wave

Final numbers distinguish between different valves in the same class.

Half-wave rectifiers have the number chosen so that this number, excluding the final digit, corresponds to the approximate heater or filament voltage.

EUROPEAN

NOMENCLATURE FOR VALVES

The type nomenclature consists of two or more letters followed by two or three figures. These symbols give information concerning the heater or filament rating, the principal uses of the valve and the type of base according to the following code:—

The first letter indicates the filament or heater rating,

Letter	*Filament or Heater Rating*	*Operation*
D	⩽1·4 V	Series or Parallel Supply
E	6·3 V	Series or Parallel Supply
G	Others	Miscellaneous
H	0·15 A	Series Supply
L	0·45 A	Series Supply
P	0·3 A	Series Supply
U	0·1 A	Series Supply
X	0·6 A	Series Supply

The following letters have formerly also been used A(4V), B(0·18A), C(0·2A), F(12·6V), K(2V), and V(50mA).

The second and subsequent letters indicate the construction and/or application of the valve,

A	Diode (excluding rectifier)
B	Double diode
C	Triode (excluding power output triode)
D	Power output triode
E	Tetrode (excluding power & output tetrode)
F	Pentode (excluding power output pentode)
L	Power output tetrode or output pentode
H	Hexode or heptode (of the hexode type)
K	Octode or heptode (of the octode type)
M	Tuning indicator
Y	Half-wave rectifier
Z	Full-wave rectifier

Note: Two or three of the above letters may be combined as required.

The first figure indicates the type of base,

1	Miscellaneous base types
2	Decal (B10B)
3	International octal
5	Magnoval (B9D) and Novar (B9E)—520 and above
8	Noval (B9A)
9	Miniature (B7G)

Note: The remaining first figures and the figure 5 have formerly been used for other base types, e.g., 6 and 7 for subminiature bases.

The remaining two figures are a serial number

Note: The following classification is also used for tetrodes and pentodes (excluding power output types):—

Even number indicates a sharp cut-off characteristic.
Odd number indicates a variable-mu characteristic.

NOMENCLATURES
for
TELEVISION PICTURE TUBES

Two type nomenclature systems are currently in use for Mazda Picture Tubes. Where applicable, tubes are now dual branded with both Mazda and European type numbers.

e.g. CME 1906/A47–13W

MAZDA SYSTEM

Television type picture tubes are designated by a letter classification followed by a number.

e.g. CME 1906

Letter classification

CME Indicates the tube has electrostatic focus and magnetic deflection.

CRM Indicates the tube has magnetic deflection and focus.

Number classification

The first part of the type number is used to identify the size of the picture tube measured in inches. For round tubes the number indicates the overall diameter of the face and for rectangular tubes, the overall diagonal of the face of the tube.
The second part of the type number is a serial number to distinguish tubes in the same size group. A suffix letter A or B, etc., may be added in order to indicate a tube with modified features, as for example a tinted front face as compared to clear glass or higher voltage ratings.

EUROPEAN SYSTEM

The type nomenclature consists of one letter and number joined by a hyphen to a number and a final letter. e.g. A47–13W

First Letter classification

The first letter "A" indicates a Television cathode ray tube for entertainment applications.

First Number classification

This first number indicates the screen dimensions in cm. For rectangular screens the screen diagonal and for round screens the diameter.

43 Represents a 43 cm (17 in.) screen
47 Represents a 47 cm (19 in.) screen
53 Represents a 53 cm (21 in.) screen
59 Represents a 59 cm (23 in.) screen

Second Number classification

This second number is a serial number indicating a particular design or development.

Final Letter

The final letter indicates the properties of the phosphor screen. For television cathode ray tubes with a white phosphor "W" will be used.

Note: Formerly the letter indicating the screen properties followed the initial letter.

Assembling MAZDA valves at Sunderland "A" factory.

CURRENT AND MAINTENANCE TYPES

MAZDA

VALVES

NUMERICAL

ALL BASE DIAGRAMS ARE VIEWED FROM THE FREE END OF PINS

see page 6 for MAZDA NOMENCLATURE

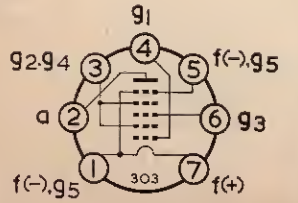
IC1

Pentagrid F.C.
1·4V, 50mA Filament

Typical Operation

V_a	90	V
V_{g2+g4}	67·5	V
V_{g3}	0	V
I_a	1·6	mA
I_{g2+g4}	3·2	mA
R_{g1}	100	k Ω
g_c	300	μA/V
r_a	600	k Ω

B7G



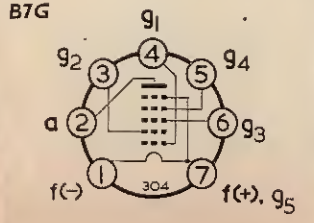
IC2

Pentagrid F.C.
1·4V, 50mA Filament

Typical Operation

V_a	85	V
V_{g4}	60	V
V_{g3}	0	V
$V_{g2(osc)}$	30	V
I_a	0·7	mA
$I_{g2(osc)}$	1·6	mA
I_{g4}	150	μA
R_{g4}	180	k Ω
$R_{g2(osc)}$	33	k Ω
$R_{g1(osc)}$	27	k Ω
g_c	325	μA/V
r_a	650	k Ω

B7G



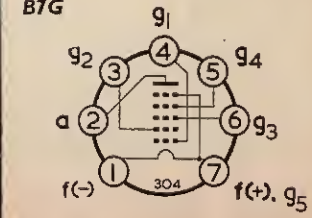
IC3

Pentagrid F.C.
1·4V, 25mA Filament

Typical Operation

V_a	85	V
V_{g4}	68	V
V_{g3}	0	V
$V_{g2(osc)}$	35	V
I_a	0·6	mA
$I_{g2(osc)}$	1·5	mA
I_{g4}	140	μA
R_{g4}	120	k Ω
$R_{g2(osc)}$	33	k Ω
$R_{g1(osc)}$	27	k Ω
g_c	300	μA/V
r_a	800	k Ω

B7G



IF1

HF Pentode
Vari–mu Amplifier
1·4V, 25mA Filament

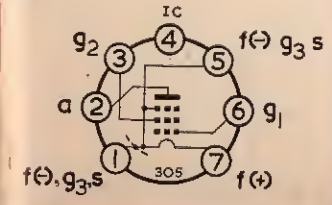
Rating

$P_{a(max)}$	250	mW

Typical Operation

V_a	85	V
V_{g2}	64	V
V_{g1}	0	V
I_a	1·65	mA
I_{g2}	0·55	mA
R_{g2}	39	k Ω
g_m	0.85	mA/V
r_a	1	M Ω

B7G



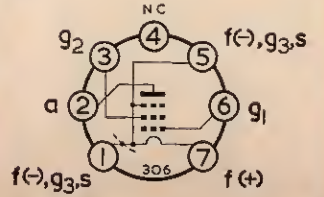
IF3

HF Pentode
Vari–mu Amplifier
1·4V, 50mA Filament

Typical Operation

V_a	90	V
V_{g2}	67·5	V
V_{g1}	0	V
I_a	3·5	mA
I_{g2}	1·4	mA
g_m	0·9	mA/V
r_a	500	k Ω

B7G



IFD1

Diode Pentode
Audio Amplifier
1·4V, 25mA Filament

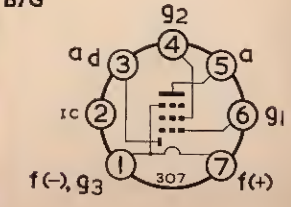
Rating (Pentode)

$P_{a(max)}$	30	mW

Characteristics (Pentode)

V_a	67·5	V
V_{g2}	67·5	V
V_{g1}	−1·5	V
I_a	170	μA
I_{g2}	55	μA
g_m	170	μA/V
μ_{g1-g2}	16	

B7G



IFD9

Diode Pentode
Audio Amplifier
1·4V, 50mA Filament

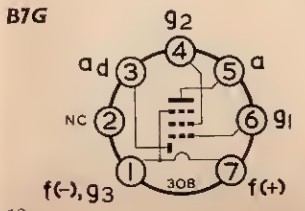
Rating (Pentode)

$P_{a(max)}$	250	mW

Characteristics (Pentode)

V_a	90	V
V_{g2}	90	V
V_{g1}	0	V
I_a	2·7	mA
I_{g2}	630	μA
g_m	720	μA/V
r_a	500	kΩ

B7G



IM1

Tuning Indicator
Ball and Line Display
1·4V, 25mA Filament

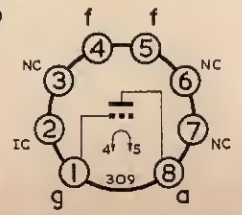
Typical Operation (Battery)

	Pin 5 earthed	Pin 4 earthed	
V_a	60	90	V
V_g	0	0	V
I_a	120	250	μA
V_g for cut-off	−8	−13·5	V

Typical Operation (Mains)

	earth pin 5	
$V_{a(b)}$	110	V
V_g	0	V
I_a	90	μA
R_a	560	kΩ
V_g for cut-off	−15	V

B8D



IP1

Audio Output Pentode
1·4V, 50mA or
2·8V, 25mA Filament

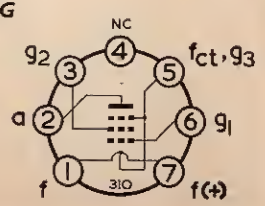
Rating

$P_{a(max)}$	600	mW

Typical Operation (Parallel Filament)

V_a	85	V
V_{g2}	85	V
V_{g1}	−5·2	V
$I_a(o)$	5	mA
$I_{g2}(o)$	0·9	mA
g_m	1·4	mA/V
r_a	150	kΩ
R_a	13	kΩ
P_{out}	200	mW

B7G



IP10

Audio Output Pentode
1·4V, 100mA or
2·8V, 50mA Filament

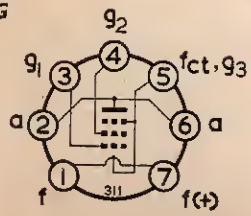
Rating

$P_{a(max)}$	700	mW

Typical Operation (Parallel Filament)

V_a	90	V
V_{g2}	67·5	V
V_{g1}	−7	V
$I_a(o)$	7·4	mA
$I_{g2}(o)$	1·4	mA
g_m	1·58	mA/V
r_a	100	kΩ
R_a	8	kΩ
P_{out}	270	mW

B7G



IP11

Audio Output Pentode
1·4V, 100mA or
2·8V, 50mA Filament

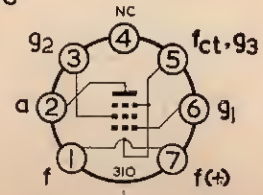
Rating

$P_{a(max)}$	1	W

Typical Operation (Parallel Filament)

V_a	90	V
V_{g2}	90	V
V_{g1}	−4·5	V
$I_a(o)$	9·5	mA
$I_{g2}(o)$	2·1	mA
g_m	2·15	mA/V
r_a	100	kΩ
R_a	10	kΩ
P_{out}	270	mW

B7G



6/30L2 - ECC804

Double Triode
General Purpose
6·3V, 0·3A Heater

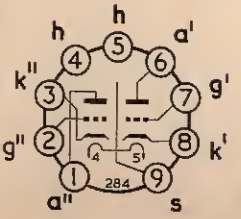
Ratings

$V_{a(max)}$	250	V
$P_{a(max)}$		
(*Either Anode*)	2·0	W
(*Both Anodes*)	2·5	W

Characteristics (each)

V_a	200	V
V_g	−7·7	V
I_a	10	mA
g_m	3·4	mA/V
μ	18	

B9A

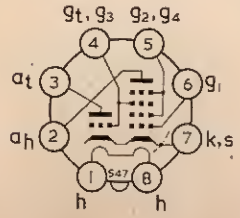


6C10

HF Triode Hexode
Frequency Changer
6·3V, 0·23A Heater

Typical Operation

	Triode	Hexode	
$V_{a(b)}$	250	250	V
V_{g_2}	...	85	V
V_{g_1}	...	−2	V
I_a	4·8	3	mA
I_{g_2}	...	3	mA
R_a	33	...	kΩ
R_{gt+g_3}	47		kΩ
R_k	180		Ω
g_c	...	0·75	mA/V



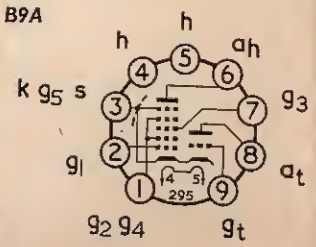
6C12

HF Triode Heptode
Frequency Changer
6·3V, 0·3A Heater

Typical Operation

	Triode	Heptode	
$V_{a(b)}$	250	250	V
V_{g_2}	...	103	V
V_{g_1}	...	−2	V
I_a	4·5	3·25	mA
I_{g_2}	...	6·7	mA
R_a	33	...	kΩ
R_{gt+g_3}	47		kΩ
$R_{g_2+g_4}$	...	22	kΩ
R_k	140		Ω
g_c	...	0·775	mA/V

B9A



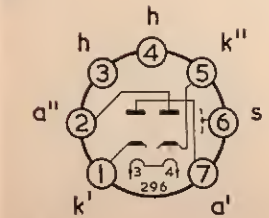
6D2

Double Diode
6·3V, 0·3A Heater

Ratings (each)

P.I.V.max	500	V
$I_{a(max)}$	9	mA
$i_{a(pk)\ max}$	50	mA

B7G



6F12

HF Pentode
6·3V, 0·3A Heater

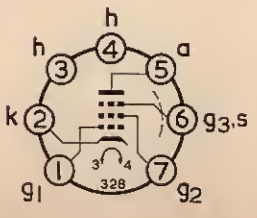
Rating

$P_{a(max)}$	2·5	W

Typical Operation

V_a	250	V
V_{g_3}	0	V
V_{g_2}	250	V
V_{g_1}	−2	V
I_a	10	mA
I_{g_2}	2·5	mA
g_m	7·5	mA/V
r_a	1	MΩ

B7G



6F18

HF Pentode
Variable-mu Amplifier
6·3V, 0·2A Heater

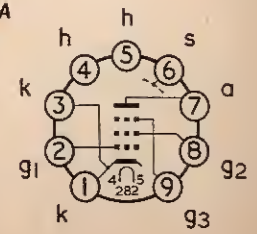
Rating

$P_{a(max)}$	2·25	W

Typical Operation

V_a	175	V
V_g	0	V
V_{g_2}	100	V
V_{g_1}	−1·3	V
I_a	12	mA
I_{g_2}	3·5	mA
g_m	4·4	mA/V
r_a	400	kΩ

B9A



6F19

HF Pentode
Variable-mu Amplifier
6·3V, 0·3A Heater

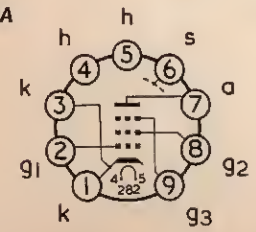
Rating

Pa(max)	2·5	W

Typical Operation

V_a	250	V
V_g	0	V
V_{g2}	100	V
V_{g1}	−2	V
I_a	10	mA
I_{g2}	2·5	mA
g_m	6	mA/V
r_a	500	k Ω

B9A



6F23

HF Pentode
6·3V, 0·3A Heater

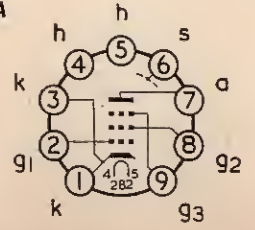
Rating

Pa(max)	3	W

Typical Operation

V_a	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−1·9	V
I_a	10	mA
I_{g2}	2·6	mA
g_m	9·2	mA/V
R_k	150	Ω

B9A



6F24

Frame Grid Pentode
HF Amplifier
6·3V, 0·3A Heater

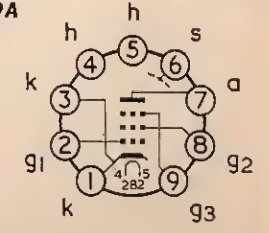
Rating

Pa(max)	2·5	W

Typical Operation

V_a	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−1·9	V
I_a	10	mA
I_{g2}	2·7	mA
R_k	150	Ω
g_m	15	mA/V

B9A



6F25

Frame Grid Pentode
Variable-mu HF Amplifier
6·3V, 0·3A Heater

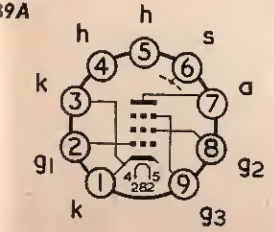
Rating

Pa(max)	2·5	W

Typical Operation

$V_{a(b)}$	200	V
V_a	170	V
V_{g2}	90	V
V_{g1}	−1·5	V
I_a	11·5	mA
I_{g2}	2·8	mA
R_{g2}	39	k Ω
R_k	100	Ω
g_m	12·5	mA/V

B9A



6F26

HF Pentode
Vari–mu Amplifier
6·3V, 0·3A Heater

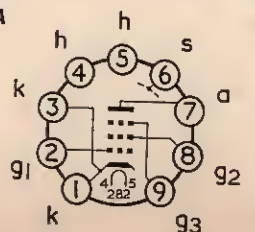
Rating

Pa(max)	2·5	W

Typical Operation

V_a	250	V
V_{g3}	0	V
V_{g2}	100	V
V_{g1}	−2	V
I_a	10	mA
I_{g2}	2·5	mA
g_m	6	mA/V
r_a	500	k Ω

B9A



6F28

Frame Grid Beam Tetrode
Video Output
6·3V, 0·3A Heater

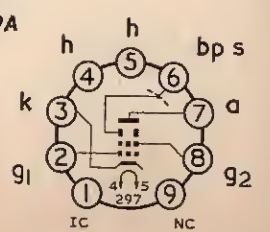
Rating

Pa(max)	2·5	W

Characteristics

V_a	180	V
V_{g2}	180	V
V_{g1}	−2·9	V
I_a	10	mA
g_m	12·5	mA/V

B9A



6F29

Frame Grid Pentode
Vari–mu HF Amplifier
6·3V, 0·3A Heater

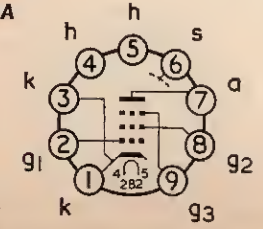
Rating

$P_{a(max)}$	2·5	W

Typical Operation

$V_{a(b)}$	200	V
V_a	188	V
V_{g2}	92	V
V_{g1}	−2	V
I_a	12	mA
I_{g2}	4·5	mA
R_{g2}	24	k Ω
R_k	120	Ω
g_m	12·5	mA/V

B9A



6F30

Frame Grid Pentode
HF Amplifier
6·3V, 0·3A Heater

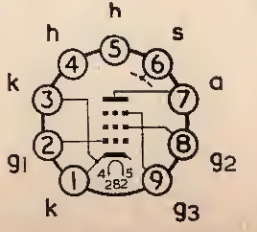
Rating

$P_{a(max)}$	2·5	W

Typical Operation

V_a	200	V
V_{g3}	0	V
V_{g2}	200	V
V_{g1}	−2·5	V
I_a	10	mA
I_{g2}	4·1	mA
R_k	180	Ω
g_m	15	mA/V
r_a	380	k Ω

B9A



6FD12

Double Diode HF Pentode
Vari–mu Amplifier
6·3V, 0·3A Heater

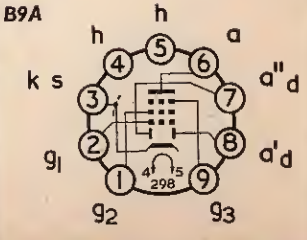
Rating (Pentode)

$P_{a(max)}$	2·25	W

Typical Operation (Pentode)

$V_a = V_{g2(b)}$	200	V
V_{g3}	0	V
V_{g1}	−1·5	V
I_a	11	mA
I_{g2}	3·3	mA
R_{g2}	30	k Ω
R_k	105	Ω
g_m	4·5	mA/V
r_a	600	k Ω

B9A



6K25

Thyratron
6·3V, 1A Heater

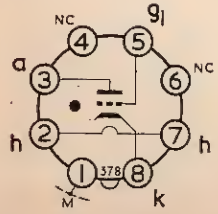
Ratings

$V_{a(max)}$	400	V
$i_{a(pk)max}$	500	mA

Typical Operation

Control Ratio	20	
R_g	30	k Ω
$I_{a(av)}$	2·5	mA

Int. Octal



6L12

VHF Double Triode
6·3V, 0·435A Heater

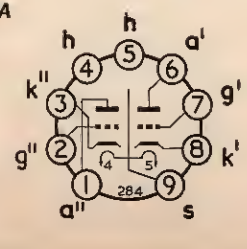
Rating

$P_{a(max)}$		
(*Either Anode*)	2·5	W
(*Both Anodes*)	4·5	W

Typical Operation (each)

	Amplifier	Osc/Mix	
$V_{a(b)}$	250	250	V
V_{g1}	−2	...	V
I_a	10	5·2	mA
R_a	1·8	12	k Ω
R_g	...	1	M Ω
g_m	6·0	...	mA/V
g_c	...	2·3	mA/V
r_a	9·7	22	k Ω

B9A



6L13

Double Triode
High–μ Audio Amplifier
6·3V, 0·3A, or
12·6V, 0·15A Heater

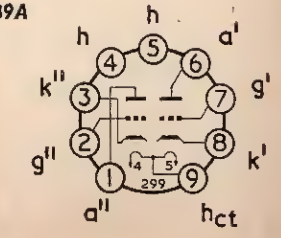
Rating

$P_{a(max)}$		
(*Each Section*)	1	W

Characteristics (each section)

V_a	250	V
V_g	−2	V
I_a	1·2	mA
g_m	1·6	mA/V
μ	100	
r_a	62·5	k Ω

B9A



6LD3

Double Diode Triode
Audio Amplifier
6·3V, 0·23A Heater

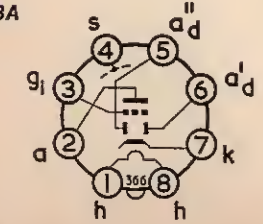
Rating (Triode)

$P_{a(max)}$	1	W

Typical Operation (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	k Ω
g_m	1·4	mA/V
μ	75	

B8A



6LD12

Triple Diode Triode
Audio Amplifier
6·3V, 0·45A Heater

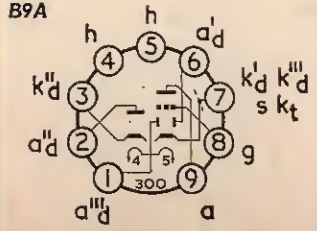
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−1	V
I_a	0·8	mA
r_a	48	k Ω
g_m	1·45	mA/V
μ	70	

B9A



6LD13

Double Diode Triode
Audio Amplifier
6·3V, 0·2A Heater

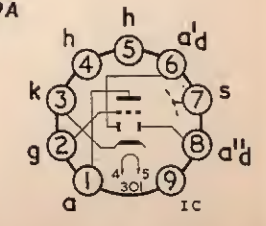
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	k Ω
g_m	1·4	mA/V
μ	75	

B9A



6P15

Audio Output Pentode
6·3V, 0·76A Heater

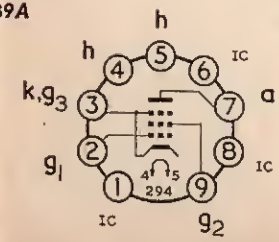
Rating

$P_{a(max)}$	12	W

Typical Operation

$V_{a(b)}$	250	V
V_{g2}	250	V
V_{g1}	−7·3	V
I_a	48	mA
I_{g2}	5·5	mA
R_a	4	k Ω
g_m	11·3	mA/V
r_a	38	k Ω
P_{out}	5·4	W

B9A



6P25

Beam Tetrode
Audio Output
6·3V, 1·1A Heater

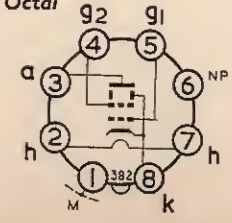
Rating

$P_{a(max)}$	10	W

Typical Operation

V_a	258	V
V_{g2}	258	V
I_a	40	mA
I_{g2}	8	mA
R_a	5·1	k Ω
R_k	180	Ω
g_m	8·8	mA/V
P_{out}	4·6	W

Int. Octal



6PL12

Triode Beam Tetrode
Audio or Field Output
6·3V, 0·78A Heater

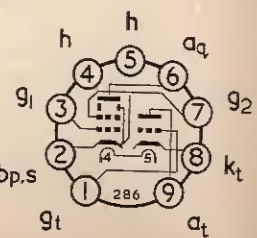
Rating

	Triode	Tetrode	
$P_{a(max)}$	1	7	W

Characteristics

V_a	100	200	V
V_{g2}	...	200	V
V_{g1}	0	−16	V
I_a	3·5	35	mA
I_{g2}	...	7	mA
R_a	...	5·6	k Ω
R_k	...	390	Ω
g_m	2·5	6·4	mA/V
μ	70	...	
P_{out}	...	3·5	W

B9A



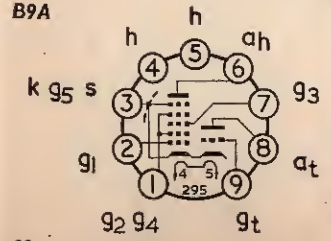
10C14

HF Triode Heptode
Frequency Changer
0·1A, 19V Heater

Typical Operation

	Triode	Heptode	
V_a	103	170	V
V_{g2}	...	102	V
V_{g1}	...	−2·2	V
I_a	4·5	3·2	mA
I_{g2}	...	6·8	mA
R_a	15	...	kΩ
R_{g2+g4}	...	10	kΩ
R_{g3+gt}	47		kΩ
R_k	150		Ω
g_c	...	0·75	mA/V

B9A



10F1

HF Screened Pentode
0·1A, 22V Heater

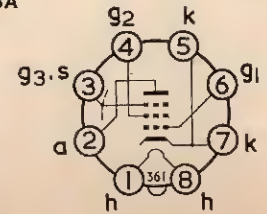
Rating

$P_{a(max)}$	3·5	W

Typical Operation

V_a	200	V
V_{g3}	0	V
V_{g2}	200	V
V_{g1}	−1·8	V
I_a	10	mA
I_{g2}	2·6	mA
g_m	9	mA/V

B8A



10F18

HF Pentode
Variable-mu Amplifier
0·1A, 13V Heater

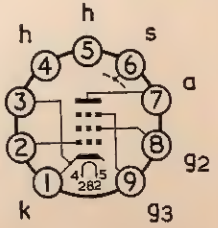
Rating

$P_{a(max)}$	2·25	W

Typical Operation

V_a	175	V
V_{g3}	0	V
V_{g2}	100	V
V_{g1}	−1·3	V
I_a	12	mA
I_{g2}	3·5	mA
g_m	4·4	mA/V
r_a	400	kΩ

B9A



10FD12

Double Diode HF Pentode
Vari–mu Amplifier
0·1A, 19V Heater

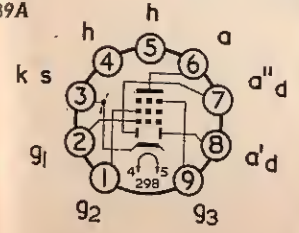
Rating (Pentode)

$P_{a(max)}$	2·25	W

Typical Operation (Pentode)

$V_a = V_{g2(b)}$	200	V
V_{g2}	100	V
V_{g1}	−1·5	V
I_a	11	mA
I_{g2}	3·3	mA
R_{g2}	30	kΩ
R_k	105	Ω
g_m	4·5	mA/V
r_a	600	kΩ

B9A



10L14

VHF Double Triode
0·1A, 26V Heater

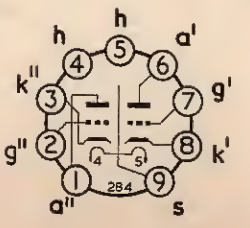
Rating

$P_{a(max)}$	*(Either)*	2·5	W
	(Both)	4·5	W

Typical Operation

	Amp	Osc/mix	
$V_{a(b)}$	170	170	V
V_{g1}	−1·4	...	V
I_a	8·7	4·8	mA
R_a	1·5	4·7	kΩ
R_g	...	1	MΩ
g_m	6	...	mA/V
g_c	...	2·2	mA/V
r_a	8·4	16	kΩ

B9A



10LD3

Double Diode Triode
Audio Amplifier
0·1A, 14V Heater

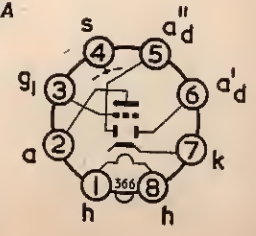
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_{g1}	−0·7	V
I_a	0·8	mA
r_a	54	kΩ
g_m	1·4	mA/V
μ	75	

B8A



10LD12

Triple Diode Triode
0·1A, 28V Heater

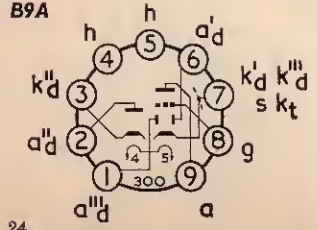
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	200	V
V_g	−2·3	V
I_a	1	mA
r_a	50	kΩ
g_m	1·4	mA/V
μ	70	

B9A



10LD13

Double Diode Triode
Audio Amplifier
0·1A, 13V Heater

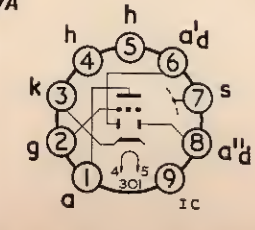
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	kΩ
g_m	1·4	mA/V
μ	75	

B9A



10P13

Beam Tetrode
Audio Output
0·1A, 40V Heater

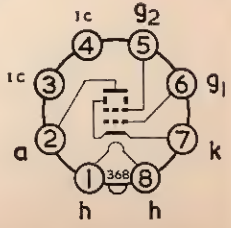
Rating

$P_{a(max)}$	6	W

Typical Operation

V_a	180	V
V_{g2}	150	V
V_{g1}	−6·3	V
I_a	29	mA
I_{g2}	5·8	mA
R_a	5·4	kΩ
g_m	7·4	mA/V
P_{out}	2·6	W

B8A



10P14

Beam Tetrode
Audio Output
0·1A, 40V Heater

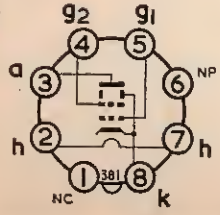
Rating

$P_{a(max)}$	10	W

Typical Operation

V_a	165	V
V_{g2}	175	V
V_{g1}	−9·4	V
I_a	42	mA
I_{g2}	10·5	mA
R_a	3·5	kΩ
g_m	7·2	mA/V
P_{out}	3·4	W

Int. Octal



10P18

Audio Output Pentode
0·1A, 45V Heater

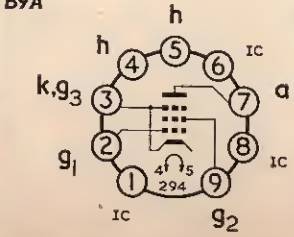
Rating

$P_{a(max)}$	12	W

Typical Operation

V_a	160	V
V_{g2}	170	V
V_{g1}	−12·5	V
$I_a(o)$	70	mA
$I_{g2}(o)$	5	mA
R_a	2·2	kΩ
g_m	10	mA/V
r_a	23	kΩ
P_{out}	5·2	W

B9A

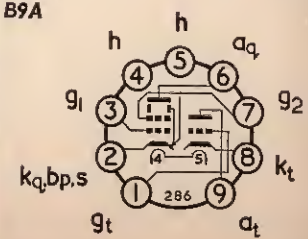


10PL12

Triode Beam Tetrode
Audio Output
0·1A, 50V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	1	7	W
Characteristics			
V_a	100	200	V
V_{g2}	…	200	V
V_{g1}	0	−16	V
I_a	3·5	35	mA
I_{g2}	…	7	mA
R_k	…	390	Ω
R_a	…	5·6	kΩ
g_m	2·5	6·4	mA/V
P_{out}	…	3·5	W

B9A



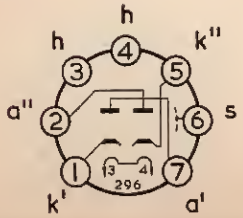
20D1

Double Diode
Separate Cathodes
0·2A, 9·5V Heater

Ratings (each)

P.I.V.$_{max}$	500	V
$i_{a(pk)max}$	50	mA

B7G



20L1

AF Double Triode
0·2A, 12·6V Heater

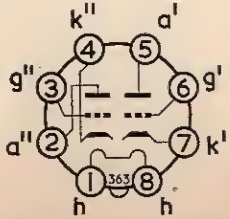
Rating

$P_{a(max)}$		
(*Either Anode*)	3	W
(*Both Anodes*)	4	W

Characteristics (each)

V_a	200	V
V_g	−8·5	V
I_a	10	mA
g_m	2·8	mA/V
μ	16	
r_a	5·7	k Ω

B8A



20P3

AF Output Beam Tetrode
0·2A, 20V Heater

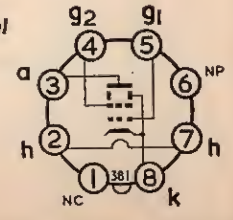
Rating

$P_{a(max)}$	10	W

Typical Operation

$V_{a(b)}$	175	V
V_{g_2}	185	V
$I_a(o)$	42	mA
$I_{g_2}(o)$	10·5	mA
R_a	4	k Ω
R_k	180	Ω
g_m	7·2	mA/V
P_{out}	2·8	W

Int. Octal



20P4

Line Output Beam Tetrode
0·2A, 38V Heater

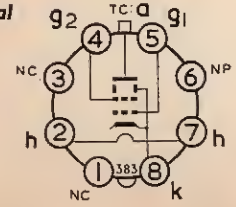
Ratings

$V_{a(max)}$	400	V
$P_{a(max)}$	10	W
$V_{g2(max)}$	250	V
$P_{g2(max)}$	4	W
$V_{a\ (pk+)max}$	6	kV

Note

When replacing 20P4 in Murphy TVs, it is necessary to adjust the cathode current in accordance with the instructions in Murphy Service Manuals. The correct value of I_k varies with each model.

Int. Octal



20P5

Beam Tetrode
Audio Output
0·2A, 20V Heater

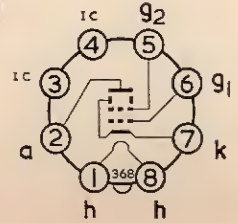
Rating

$P_{a(max)}$	6	W

Typical Operation

V_a	180	V
V_{g_2}	150	V
V_{g_1}	−6·3	V
$I_a(o)$	29	mA
$I_{g_2}(o)$	5·8	mA
R_a	5·4	k Ω
g_m	7·4	mA/V
P_{out}	2·6	W

B8A



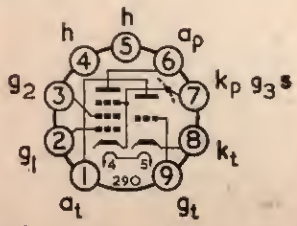
30C1

VHF Triode Pentode F.C.
0·3A, 9V Heater

Typical Operation

	Triode	Pentode	
V_a	120	170	V
V_{g2}	...	145	V
$V_{het(pk)}$	...	5	V
I_a	6	6·8	mA
I_{g2}	...	2	mA
R_g	...	33	kΩ
g_c	...	2	mA/V
μ	20	...	

B9A



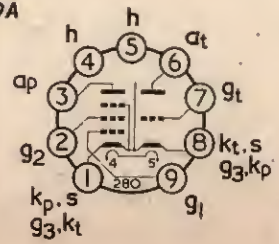
30C15

VHF Triode Pentode F.C.
0·3A, 9V Heater

Typical Operation

	Triode	Pentode	
$V_{a(b)}$	...	200	V
V_a	120	164	V
V_{g2}	...	138	V
$V_{het(pk)}$	...	3·7	V
I_a	6	7·6	mA
I_{g2}	...	2·3	mA
g_c	...	3·3	mA/V
μ	20	...	

B9A



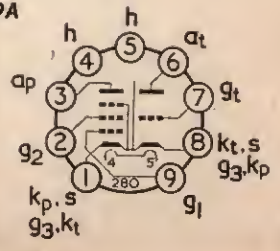
30C17

Frame Grid Triode Pentode
VHF Vari-mu F.C.
0·3A, 7·4V Heater

Typical Operation

	Triode	Pentode	
V_a	60	160	V
V_{g2}	...	150	V
I_a	7	7·3	mA
I_{g2}	...	1·8	mA
R_{g1}	47	2,200	kΩ
R_{g2}	...	27	kΩ
R_a	...	5·6	kΩ
g_c	...	4·8	mA/V
g_m	5·5	...	mA/V
μ	20	...	

B9A



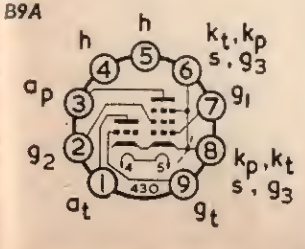
30C18

Triode Frame Grid Pentode
VHF Vari-mu F.C.
0·3A, 7·4V Heater

Typical Operation

	Triode	Pentode	
V_a	77	155	V
V_{g2}	...	135	V
I_a	7·8	7·8	mA
I_{g2}	...	2·4	mA
R_{g1}	47	2,200	kΩ
R_{g2}	...	27	kΩ
R_a	...	5·6	kΩ
g_c	...	4·7	mA/V
g_m	4·5	...	mA/V
μ	17	...	

B9A



30F5

HF Screened Pentode
0·3A, 7·3V Heater

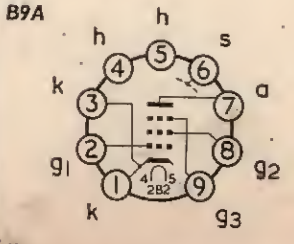
Rating

$P_{a(max)}$	3	W

Typical Operation

V_a	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−1·9	V
I_a	10	mA
I_{g2}	2·6	mA
R_k	150	Ω
g_m	8·8	mA/V

B9A

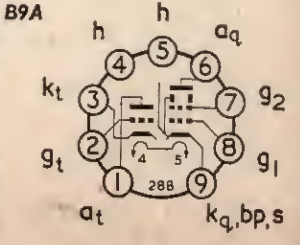


30FL1

Triode Beam Tetrode
Video or Synch. Separator
0·3A, 9·4V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	2	3	W
Characteristics			
V_a	200	170	V
V_{g2}	...	170	V
V_{g1}	−7·7	−2·1	V
I_a	10	10	mA
g_m	3·4	8	mA/V
μ	18	...	

B9A

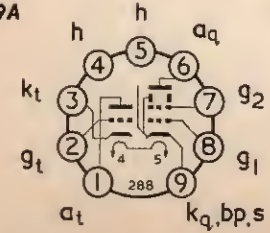


30FL12

Triode Frame Grid Tetrode
Video Output
0·3A, 10V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	1·5	2·5	W
Characteristics			
V_a	150	180	V
V_{g2}	...	180	V
V_{g1}	−4·9	−2·9	V
I_a	10	10	mA
g_m	3·7	12·5	mA/V
μ	18	...	

B9A

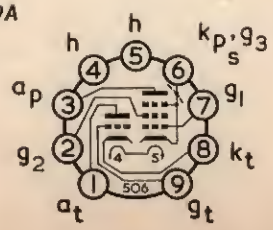


30FL14

Triode Pentode
HF Amp. and Scanning Osc.
0·3A, 7·4V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	2·0	2·0	W
Characteristics			
V_a	100	160	V
V_{g2}	...	160	V
V_{g1}	−3·0	−1·7	V
I_a	14	12	mA
I_{g2}	...	4·0	mA
g_m	5·5	14·5	mA/V
r_a	3·1	...	kΩ
μ	17	...	

B9A

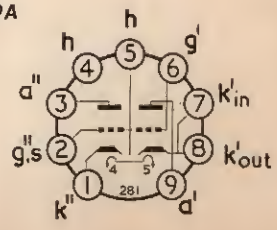


30L1

VHF Double Triode
Cascade RF Amplifier
0·3A, 7V Heater

Rating		
$P_{a(max)}$ (*Either Anode*)	2	W
Characteristics (each section)		
V_a	90	V
V_g	−1·5	V
I_a	12	mA
g_m	6	mA/V
μ	24	

B9A

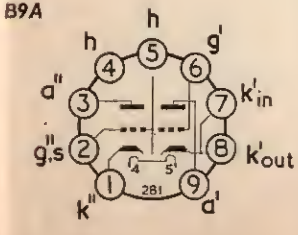


30L15

Double Triode
VHF Cascode
Variable-mu Amplifier
0·3A, 7V Heater

Rating (each section)		
$P_{a(max)}$	2	W
Characteristics (each section)		
V_a	90	V
V_g	−1·2	V
I_a	15	mA
g_m	9	mA/V
μ	27	

B9A

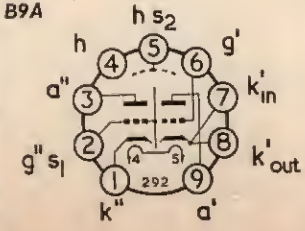


30L17

Frame Grid Double Triode
VHF Cascode
Variable-mu Amplifier
0·3A, 7·2V Heater

Rating (each section)		
$P_{a(max)}$	1·6	W
Characteristics (each section)		
V_a	75	V
V_g	0·75	V
I_a	15	mA
g_m	16·5	mA/V
μ	40	

B9A



30P4MR

Line Output Beam Tetrode
0·3A, 25V Heater

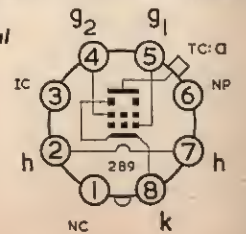
Ratings		
$V_{a(max)}$	400	V
$P_{a(max)}$	10	W
$V_{g2(max)}$	250	V
$P_{g2(max)}$	4	W
$I_{k(max)}$	160	mA
$V_{a\ (pk+)max}$	6·5	kV

Notes

30P4MR is a specially selected valve for use in some Murphy TVs using a single valve line time-base.

Other 30P4 valves may be directly replaced by 30P19 without circuit modification.

Int. Octal



30P12

Beam Tetrode
Audio or Field Output
0·3A, 12·6V Heater

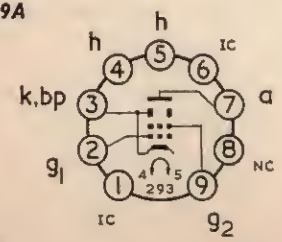
Rating

$P_{a(max)}$	6	W

Typical Operation

V_a	170	V
V_{g2}	180	V
V_{g1}	−10·3	V
I_a	31	mA
I_{g2}	7·3	mA
R_a	5	k Ω
P_{out}	2·25	W

B9A



30P16

Output Pentode
Audio or Field Output
0·3A, 16·5V Heater

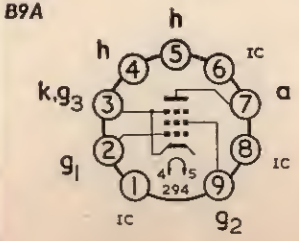
Rating

$P_{a(max)}$	9	W

Typical Operation

V_a	200	V
V_{g2}	200	V
V_{g1}	−14·4	V
I_a	45	mA
I_{g2}	8·5	mA
R_a	4	k Ω
g_m	7·6	mA/V
r_a	24	k Ω
P_{out}	4·2	W

B9A



30P18

Field Output Pentode
0·3A, 15V Heater

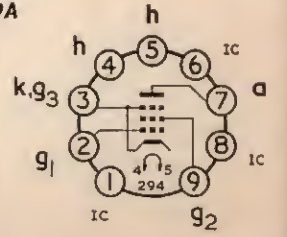
Rating

$P_{a(max)}$	12	W

Typical Operation

V_a	160	V
V_{g2}	170	V
V_{g1}	−12·5	V
I_a	70	mA
I_{g2}	5	mA
R_a	2·2	k Ω
g_m	10	mA/V
r_a	23	k Ω
P_{out}	5·2	W

B9A



30P19

Beam Tetrode
Line Output
0·3A, 25V Heater

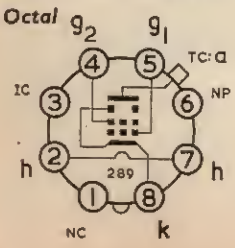
Ratings

$P_{a(max)}$ ($P_{g2} \leqslant 4W$)	11	W
$P_{g2(max)}$ ($P_a \leqslant 7W$)	5	W
$V_{a(max)}$	250	V
$V_{g2(max)}$	250	V
$V_{h-k\ (r.m.s.)max}$	200	V
$I_{k(max)}$	200	mA
$v_{a(pk+)max}$	7	kV

Note

30P19 may be used to replace 30P4, but not 30P4MR.

Int. Octal



30PL1

Triode Beam Tetrode
Audio or Field Output
0·3A, 13V Heater

Rating (Tetrode)

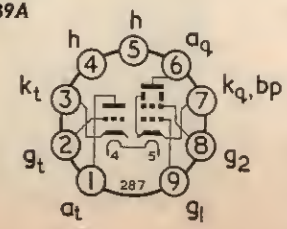
$P_{a(max)}$	5·5	W

Typical Operation (Tetrode)

V_a	180	V
V_{g2}	190	V
I_a	28	mA
I_{g2}	6·5	mA
R_a	6·2	k Ω
R_k	270	Ω
P_{out}	2·2	W

For triode characteristics, please see 6/30L2 on page 14.

B9A

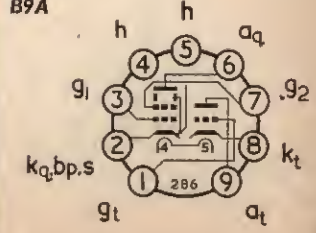


30PL13

Triode Beam Tetrode
Field Output
0·3A, 16V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	1	7	W
Characteristics			
V_a	100	170	V
V_{g2}	...	170	V
V_{g1}	−2·2	−13	V
I_a	10	45	mA
g_m	4·3	7·5	mA/V
μ	18	...	

B9A

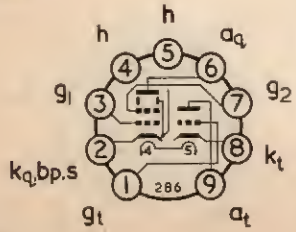


30PL14

Triode Beam Tetrode
Field Output
0·3A, 16V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	1	8	W
Characteristics			
V_a	100	170	V
V_{g2}	...	170	V
V_{g1}	−2·2	−14·5	V
I_a	10	50	mA
g_m	4·3	7·3	mA/V
μ	18	...	

B9A

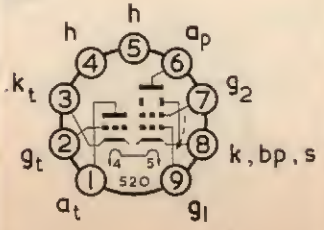


30PL15

Triode Beam Tetrode
Field Output
0·3A, 16V Heater

	Triode	Tetrode	
Rating			
$P_{a(max)}$	1	8	W
Characteristics			
V_a	100	170	V
V_{g2}	...	170	V
V_{g1}	−2·2	−14·5	V
I_a	10	50	mA
g_m	4·3	7·3	mA/V
μ	18	...	

B9A

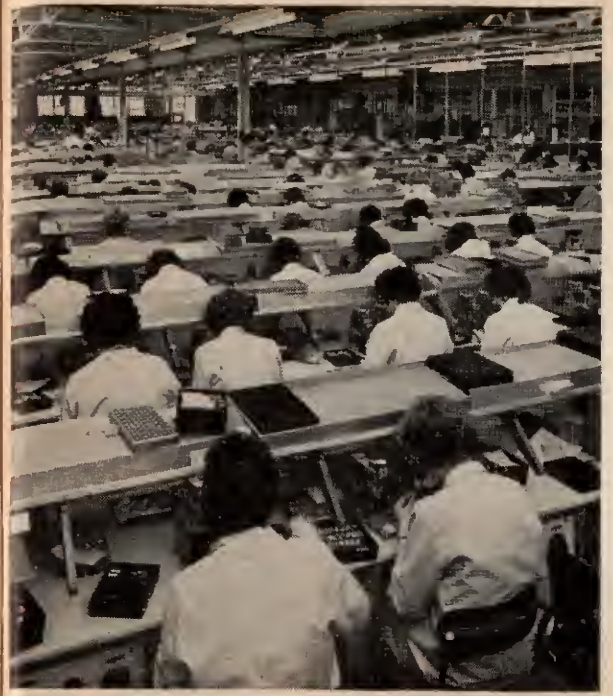


REMINDER

Please do NOT send

Television sets
Radio sets
Tape decks
Lamps
'Frig' motors
Vacuum cleaners
Loudspeakerphones
Kettles
Washing machines
Tuner units
Fenbridge guards
Gas fires
TV relay amplifiers
etc.
to the

MAZDA VALVE
SERVICE DEPT.
BRIMSDOWN



Assembling MAZDA valves at the Rochester factory.

CURRENT AND MAINTENANCE TYPES

MAZDA

VALVES

ALPHABETICAL

ALL BASE DIAGRAMS ARE VIEWED FROM THE FREE END OF PINS
see page 7 for EUROPEAN NOMENCLATURE

DAF91

Diode Pentode
Audio Amplifier
1·4V, 50mA Filament

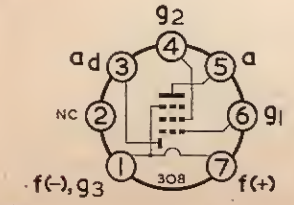
Rating (Pentode)

$P_{a(max)}$	250	mW

Characteristics (Pentode)

V_a	90	V
V_{g2}	90	V
V_{g1}	0	V
I_a	2·7	mA
I_{g2}	630	μA
g_m	720	μA/V
r_a	500	kΩ

B7G



DAF96

Diode Pentode
Audio Amplifier
1·4V, 25mA Filament

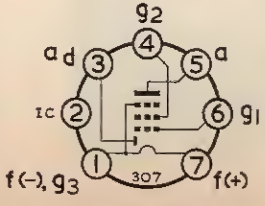
Rating (Pentode)

$P_{a(max)}$	30	mW

Characteristics (Pentode)

V_a	67·5	V
V_{g2}	67·5	V
V_{g1}	−1·5	V
I_a	170	μA
I_{g2}	55	μA
g_m	170	μA/V
μ_{g1-g2}	16	

B7G



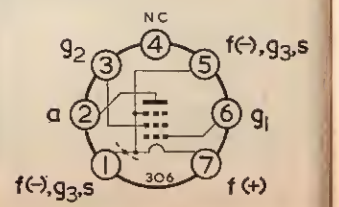
DF91

HF Pentode
Variable-mu Amplifier
1·4V, 50mA Filament

Typical Operation

V_a	90	V
V_{g2}	67·5	V
V_{g1}	0	V
I_a	3·5	mA
I_{g2}	1·4	mA
g_m	0·9	mA/V
r_a	500	kΩ

B7G



DF96

HF Pentode
Variable-mu Amplifier
1·4V, 25mA Filament

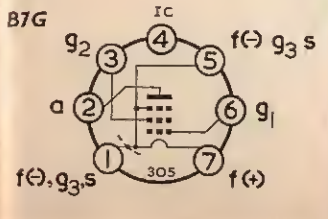
Rating

$P_{a(max)}$	250	mW

Typical Operation

V_a	85	V
V_{g2}	64	V
V_{g1}	0	V
I_a	1·65	mA
I_{g2}	0·55	mA
R_{g2}	39	kΩ
g_m	0·85	mA/V
r_a	1	MΩ

B7G



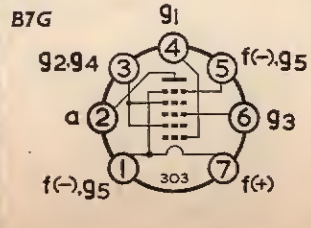
DK91

Pentagrid Frequency Changer
1·4V, 50mA Filament

Typical Operation

V_a	90	V
V_{g2+g4}	67·5	V
V_{g3}	0	V
I_a	1·6	mA
I_{g2+g4}	3·2	mA
R_{g1}	100	kΩ
g_c	300	μA/V
r_a	600	kΩ

B7G



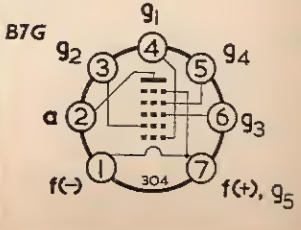
DK92

Pentagrid Frequency Changer
1·4V, 50mA Filament

Typical Operation

V_a	85	V
V_{g4}	60	V
V_{g3}	0	V
$V_{g2(osc)}$	30	V
I_a	0·7	mA
$I_{g2(osc)}$	1·6	mA
I_{g4}	150	μA
R_{g4}	180	kΩ
$R_{g2(osc)}$	33	kΩ
$R_{g1(osc)}$	27	kΩ
g_c	325	μA/V
r_a	650	kΩ

B7G



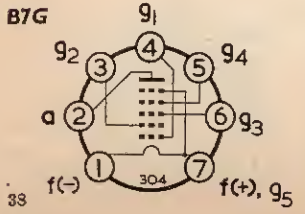
DK96

Pentagrid Frequency Changer
1·4V, 25mA Filament

Typical Operation

V_a	85	V
V_{g4}	68	V
V_{g3}	0	V
$V_{g2(osc)}$	35	V
I_a	0·6	mA
$I_{g2(osc)}$	1·5	mA
I_{g4}	140	μA
R_{g4}	120	kΩ
$R_{g2(osc)}$	33	kΩ
$R_{g1(osc)}$	27	kΩ
g_c	300	μA/V
r_a	800	kΩ

B7G



DL92

Audio Output Pentode
1·4V, 100mA, or
2·8V, 50mA Filament

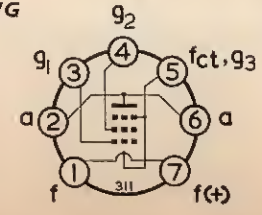
Rating

$P_{a(max)}$	700	mW

Typical Operation (Parallel Filament)

V_a	90	V
V_{g2}	67·5	V
V_{g1}	−7	V
I_a	7·4	mA
I_{g2}	1·4	mA
g_m	1·58	mA/V
r_a	100	kΩ
R_a	8	kΩ
P_{out}	270	mW

B7G



DL94

Audio Output Pentode
1·4V, 100mA, or
2·8V, 50mA Filament

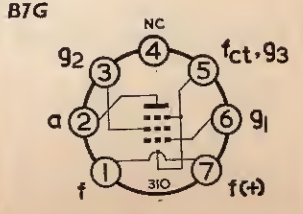
Rating

$P_{a(max)}$	1	W

Typical Operation (Parallel Filament)

V_a	90	V
V_{g2}	90	V
V_{g1}	−4·5	V
I_a	9·5	mA
I_{g2}	2·1	mA
g_m	2·15	mA/V
r_a	100	kΩ
R_a	10	kΩ
P_{out}	270	mW

B7G



DL96

Audio Output Pentode
1·4V, 50mA, or
2·8V, 25mA Filament

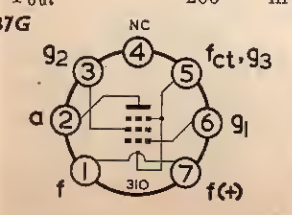
Rating

$P_{a(max)}$	600	mW

Typical Operation (Parallel Filament)

V_a	85	V
V_{g2}	85	V
V_{g1}	−5·2	V
$I_{a(o)}$	5	mA
$I_{g2(o)}$	0·9	mA
g_m	1·4	mA/V
r_a	150	kΩ
R_a	13	kΩ
P_{out}	200	mW

B7G



DM71

Tuning Indicator
Ball and Line Display
1·4V, 25mA Filament

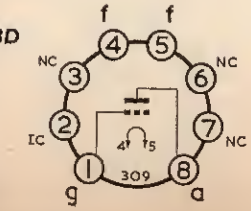
Typical Operation (Battery)

	Pin 5 earthed	Pin 4 earthed	
V_a	60	90	V
V_g	0	0	V
I_a	120	250	μA
V_g for cut-off	−8	−13·5	V

Typical Operation (Mains)

	Earth Pin 5	
$V_{a(b)}$	110	V
R_a	560	kΩ
I_a	90	μA
V_{g1} for cut-off	−15	V

B8D



DY86

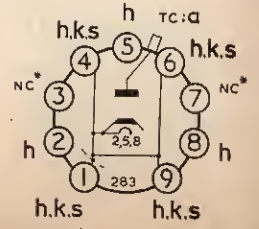
EHT Rectifier
1·4V, 0·55A Heater

Ratings (pulse operation)

P.I.V.max	22	kV
$I_{a(max)}$	800	μA
$i_{a(pk)max}$	40	mA
$C_{(max)}$	2000	pF

B9A

* *Should not be earthed. May be connected to adjacent heater pins*



DY87

EHT Rectifier
1·4V, 0·55A Heater

Ratings (pulse operation)

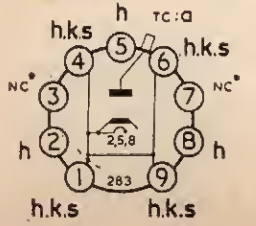
P.I.V.max	22	kV
$I_{out(max)}$	800	μA
$i_{out\ (pk)max}$	40	mA
$C_{(max)}$	2 000	pF

Note

This valve differs from DY86 only in so far as the glass envelope is externally treated with silicones to avoid flash-over under conditions of high humidity and low atmospheric pressure.

B9A

* *Should not be earthed. May be connected to adjacent heater pins.*



EABC80

Triple Diode Triode
Audio Amplifier
6·3V, 0·45A Heater

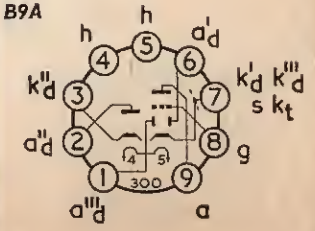
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−1	V
I_a	0·8	mA
r_a	48	kΩ
g_m	1·45	mA/V
μ	70	

B9A



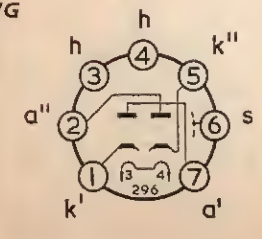
EB91

Double Diode
6·3V, 0·3A Heater

Ratings (each)

P.I.V.max	500	V
$I_{a(max)}$	9	mA
$i_{a(pk)max}$	50	mA

B7G



EBC41

Double Diode Triode
Audio Amplifier
6·3V, 0·23A Heater

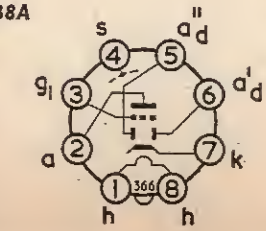
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	kΩ
g_m	1·4	mA/V
μ	75	

B8A



EBC81

Double Diode Triode
Audio Amplifier
6·3V, 0·2A Heater

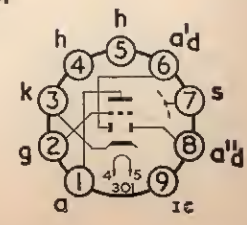
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	kΩ
g_m	1·4	mA/V
μ	75	

B9A



EBC90

Double Diode Triode
Audio Amplifier
6·3V, 0·3A Heater

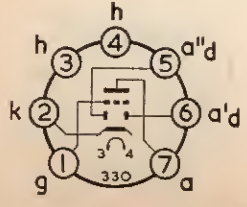
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	250	V
V_g	−3	V
I_a	1	mA
g_m	1·2	mA/V
μ	70	
r_a	58	kΩ

B7G



EBF80

Double Diode HF Pentode
Variable-mu Amplifier
6·3V, 0·3A Heater

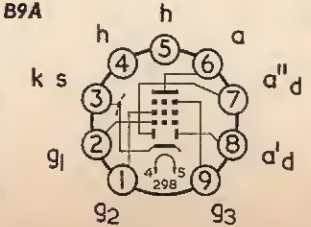
Rating (Pentode)

$P_{a(max)}$	1·5	W

Typical Operation (Pentode)

V_a	250	V
V_{g3}	0	V
V_{g2}	85	V
V_{g1}	−2	V
I_a	5	mA
I_{g2}	1·75	mA
R_{g2}	95	kΩ
R_k	300	Ω
g_m	2·2	mA/V
μ_{g1-g2}	18	

B9A



EBF89

Double Diode HF Pentode
Variable-mu Amplifier
6·3V, 0·3A Heater

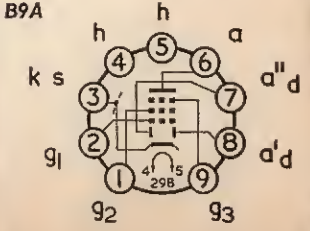
Rating (Pentode)

$P_{a(max)}$	2·25	W

Typical Operation (Pentode)

$V_a = V_{g2(b)}$	200	V
V_{g3}	0	V
V_{g1}	−1·5	V
I_a	11	mA
I_{g2}	3·3	mA
R_{g2}	30	kΩ
R_k	105	Ω
g_m	4·5	mA/V
r_a	600	kΩ

B9A



ECC81

VHF Double Triode
6·3V, 0·3A or
12·6V, 0·15A Heater

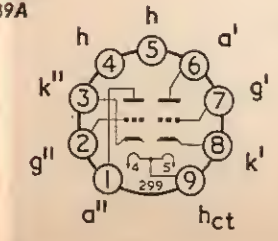
Rating (each section)

$P_{a(max)}$	2·5	W

Characteristics (each section)

$V_{a(b)}$	250	V
V_g	−2	V
I_a	10	mA
g_m	5·5	mA/V
μ	60	
r_a	11	kΩ

B9A



ECC82

Double Triode
Audio Amplifier
6·3V, 0·3A or
12·6V, 0·15A Heater

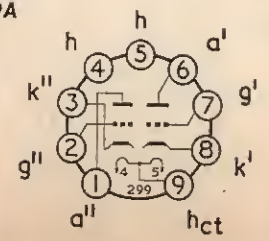
Rating (each section)

$P_{a(max)}$	2·75	W

Characteristics (each section)

V_a	250	V
V_g	−8·5	V
I_a	10·5	mA
g_m	2·2	mA/V
μ	17	
r_a	7·7	kΩ

B9A



ECC83

Double Triode
High-μ Audio Amplifier
6·3V, 0·3A or
12·6V, 0·15A Heater

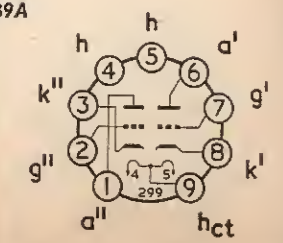
Rating (each section)

$P_{a(max)}$	1	W

Characteristics (each section)

V_a	250	V
V_g	−2	V
I_a	1·2	mA
g_m	1·6	mA/V
μ	100	
r_a	62·5	kΩ

B9A



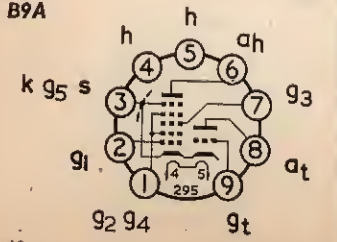
ECH81

HF Triode Heptode
Frequency Changer
6·3V, 0·3A Heater

Typical Operation

	Triode	Heptode	
$V_{a(b)}$	250	250	V
V_{g2}	...	103	V
V_{g1}	...	−2	V
I_a	4·5	3·25	mA
I_{g2}	...	6·7	mA
R_a	33	...	kΩ
R_{g2+g4}	...	22	kΩ
R_{gt+g3}	47		kΩ
R_k	140		Ω
g_c	...	0·775	mA/V

B9A

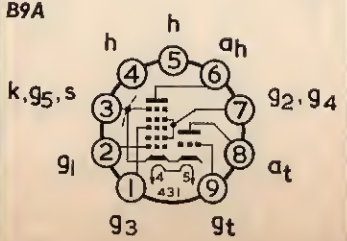


ECH84

Triode Heptode
Synch Separator
6·3V, 0·3A Heater

	Triode	Heptode	
Rating			
$P_{a(max)}$	1·3	1·7	W
Characteristics			
V_a	50	135	V
V_{g3}	...	0	V
V_{g2+g4}	...	14	V
V_{g1}	0	0	V
I_a	3	1·7	mA
I_{g2+g4}	...	0·9	mA
g_m	3·7	2·2	mA/V
μ	50	...	

B9A

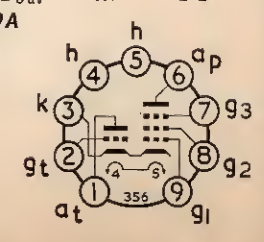


ECL80

Triode Pentode
Audio or Field Output
6·3V, 0·3A Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1	3·5	W
Characteristics			
V_a	100	200	V
V_{g2}	...	200	V
V_{g1}	−2·3	−8	V
I_a	4	17·5	mA
I_{g2}	...	3·3	mA
R_a	...	11	kΩ
r_a	12·5	150	kΩ
g_m	1·4	3·3	mA/V
P_{out}	...	1·4	W

B9A

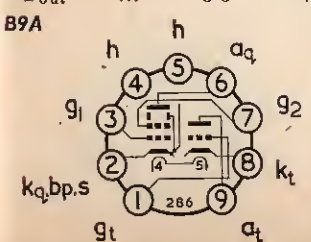


ECL82

Triode Pentode
Audio or Field Output
6·3V, 0·78A Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1	7	W
Characteristics			
V_a	100	200	V
V_{g2}	...	200	V
V_{g1}	0	−16	V
I_a	3·5	35	mA
I_{g2}	...	7	mA
R_a	...	5·6	kΩ
R_k	...	390	Ω
g_m	2·5	6·4	mA/V
μ	70	...	
P_{out}	...	3·5	W

B9A

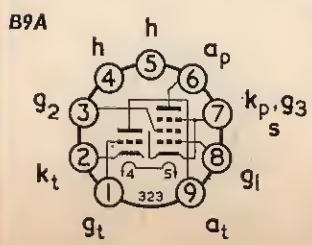


ECL86

Triode Pentode
Audio Amp and Output
6·3V, 0·66A Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	0·5	9	W
Typical Operation (Pentode)			
V_a	250	250	V
V_{g2}	...	250	V
I_a	1·2	36	mA
I_{g2}	...	6	mA
R_a	...	7	kΩ
R_k	...	170	Ω
g_m	1·6	10	mA/V
μ	100	...	
P_{out}	...	4	W

B9A

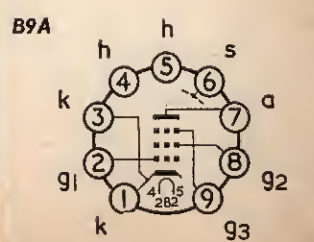


EF80

HF Pentode
6·3V, 0·3A Heater

Rating		
$P_{a(max)}$	2·5	W
Characteristics		
$V_{a(b)}$	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−2	V
I_a	10	mA
I_{g2}	2·5	mA
g_m	7·4	mA/V
r_a	500	kΩ

B9A



EF85

HF Pentode
Variable-mu Amplifier
6·3V, 0·3A Heater

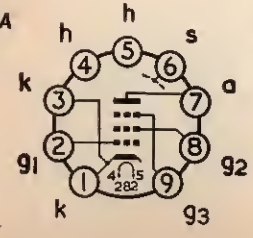
Rating

$P_{a(max)}$	2·5	W

Typical Operation

V_a	250	V
V_{g3}	0	V
V_{g2}	100	V
V_{g1}	−2	V
I_a	10	mA
I_{g2}	2·5	mA
g_m	6	mA/V
r_a	500	k Ω

B9A



EF86

Audio Pentode
Low Noise Pre-amplifier
6·3V, 0·2A Heater

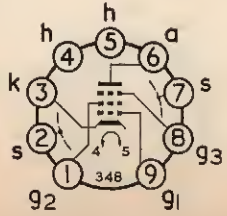
Rating

$P_{a(max)}$	1	W

Characteristics

V_a	250	V
V_{g3}	0	V
V_{g2}	140	V
V_{g1}	−2	V
I_a	3	mA
I_{g2}	0·6	mA
g_m	2	mA/V
r_a	2·5	MΩ

B9A



EF89

HF Pentode
Variable-mu Amplifier
6·3V, 0·2A Heater

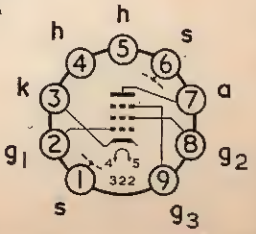
Rating

$P_{a(max)}$	2·25	W

Characteristics

$V_{a(b)}$	250	V
V_{g3}	0	V
V_{g2}	100	V
V_{g1}	−2	V
I_a	9	mA
I_{g2}	3	mA
g_m	3·6	mA/V
r_a	1	MΩ
R_k	160	Ω

B9A



EF91

HF Pentode
6·3V, 0·3A Heater

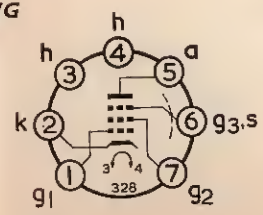
Rating

$P_{a(max)}$	2·5	W

Characteristics

V_a	250	V
V_{g3}	0	V
V_{g2}	250	V
V_{g1}	−2	V
I_a	10	mA
I_{g2}	2·5	mA
g_m	7·5	mA/V
r_a	1	MΩ

B7G



EF183

Frame Grid Pentode
Variable-mu HF Amplifier
6·3V, 0·3A Heater

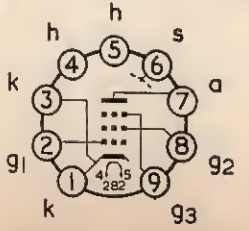
Rating

$P_{a(max)}$	2·5	W

Typical Operation

V_b	200	V
V_a	188	V
V_{g2}	92	V
V_{g1}	−2	V
I_a	12	mA
I_{g2}	4·5	mA
R_{g2}	24	kΩ
R_k	120	Ω
g_m	12·5	mA/V

B9A



EF184

Frame Grid Pentode
HF Amplifier
6·3V, 0·3A Heater

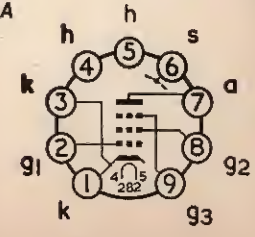
Rating

$P_{a(max)}$	2·5	W

Typical Operation

V_a	200	V
V_{g3}	0	V
V_{g2}	200	V
V_{g1}	−2·5	V
I_a	10	mA
I_{g2}	4·1	mA
R_k	180	Ω
g_m	15	mA/V
r_a	380	kΩ

B9A



EH90

HF Dual Control Heptode
6·3V, 0·3A Heater

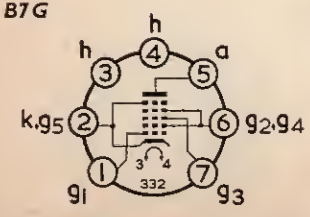
Rating

$P_{a(max)}$	1	W

Characteristics

V_a	100	100	V
V_{g2+g4}	30	30	V
V_{g3}	−1	0	V
V_{g1}	0	−1	V
I_a	0·8	0·75	mA
I_{g2+g4}	4	1·1	mA
$g_{m(g1-a)}$	...	1·2	mA/V
$g_{m(g3-a)}$	1·55	...	mA/V

B7G



EL84

Audio Output Pentode
6·3V, 0·76A Heater

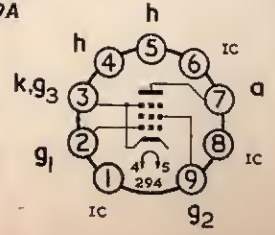
Rating

$P_{a(max)}$	12	W

Typical Operation

$V_{a(b)}$	250	V
V_{g2}	250	V
V_{g1}	−7·3	V
I_a	48	mA
I_{g2}	5·5	mA
R_a	4	k Ω
g_m	11·3	mA/V
r_a	38	kΩ
P_{out}	5·4	W

B9A



ELL80

Double Pentode
Audio Output
6·3V, 0·55A Heater

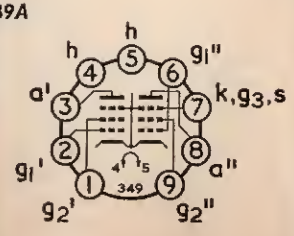
Rating (each section)

$P_{a(max)}$	6	W

Typical Operation (each section)

$V_{a(b)}$	250	V
V_{g2}	250	V
V_{g1}	−9	V
I_a	24	mA
I_{g2}	4·5	mA
R_a	10	k Ω
g_m	6	mA/V
r_a	80	k Ω
P_{out}	3	W

B9A



EM84

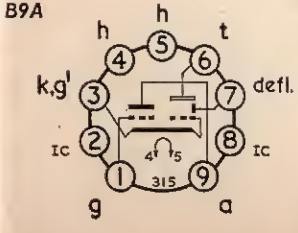
Tuning Indicator
Column Display
6·3V, 0·21A Heater

Typical Operation

$V_{a(b)}$	250		V
V_t	250		V
R_a	470		k Ω
V_g	0	−22	V
I_a	450	60	μA
I_t	1·0	1·8	mA
L*	21	0	mm

* *Length of column*

B9A



EM87

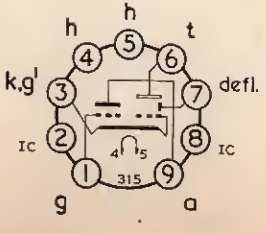
Tuning Indicator
Column Display
6·3V, 0·3A Heater

Typical Operation

V_b	250		V
V_t	250		V
R_a	100		k Ω
$V_{g(b)}$	0	−10	V
I_a	2	0·5	mA
I_t	1·0	1·8	mA
L*	21	0	mm

* *Length of column.*

B9A



EY51

EHT Rectifier
6·3V, 0·09A Heater

Ratings (pulse operation)

P.I.V.-max	17	kV
$I_{a(max)}$	350	μA
$C_{res(max)}$	0·005	μF

Wired in

EY86

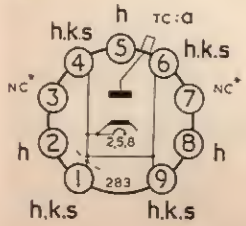
EHT Rectifier
6·3V, 0·09A Heater

Ratings (pulse operation)

P.I.V.max	22	kV
$I_{a(max)}$	800	μA
$i_{a(pk)max}$	40	mA

B9A

* *Should not be earthed. May be connected to adjacent heater pins.*



EY87

EHT Rectifier
6·3V, 0·09A Heater

Ratings (pulse operation)

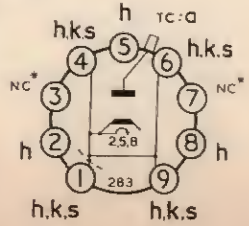
P.I.V.max	22	kV
$I_{a(max)}$	800	μA
$i_{a(pk)max}$	40	mA

Note

This valve differs from EY86 only in so far as the glass envelope is externally treated with silicones to avoid flash-over under conditions of high humidity and low atmospheric pressure.

B9A

* *Should not be earthed. May be connected to adjacent heater pins.*



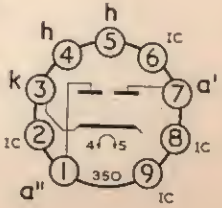
EZ80

Full Wave Rectifier
6·3V, 0·6A Heater

Typical Operation

I_a	90	mA
$V_{in(r.m.s.)}$	350	V
V_{out}	360	V
C_{res}	50	μF
R_{lim}	300	Ω

B9A



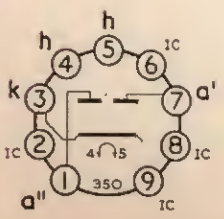
EZ81

Full Wave Rectifier
6·3V, 1A Heater

Typical Operation

I_a	150	mA
$V_{in(r.m.s.)}$	350	V
V_{out}	352	V
C_{res}	50	μF
R_{lim}	230	Ω

B9A



PC86

Frame Grid Triode
UHF Self-Oscillating Mixer
0·3A, 3·8V Heater

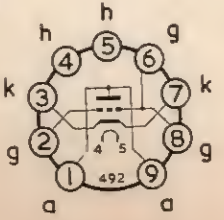
Rating

$P_{a(max)}$	2·2	W

Typical Operation

$V_{a(b)}$	220	V
I_a	12	mA
I_g	50	μA
R_a	5·6	kΩ
R_g	47	kΩ
$V_{osc(r.m.s.)}$	2·5	V
g_c	5·5	mA/V

B9A



PC88

Frame Grid Triode
UHF Grounded Grid Amplifier
0·3A, 3·8V Heater

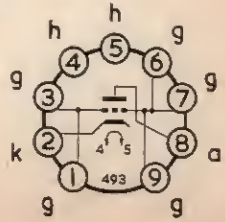
Rating

$P_{a(max)}$	2	W

Typical Operation

$V_{a(b)}$	160	V
I_a	12·5	mA
R_k	100	Ω
g_m	13·5	mA/V
r_a	4·8	kΩ
μ	65	

B9A



PC97

Frame Grid Triode
VHF Variable-mu Amplifier
0·3A, 4·5V Heater

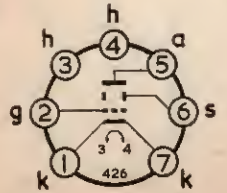
Rating

$P_{a(max)}$	2·2	W

Typical Operation

$V_{a(b)}$	135	V
I_a	10·5	mA
R_a	1	kΩ
R_k	82	Ω
g_m	13	mA/V
μ	65	
r_a	5	kΩ

B7G



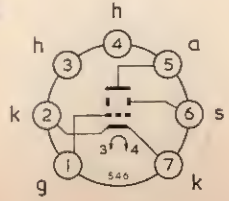
PC900

Frame Grid Triode
VHF Variable-mu Amplifier
0·3A, 4V Heater

Typical Operation

V_b	200	V
R_a	5·6	kΩ
R_k	82	Ω
I_a	11·5	mA
I_g	0	μA
V_g	−1	V
g_m	14·5	mA/V
μ	72	

B7G



PCC84

Double Triode
VHF Cascode Amplifier
0·3A, 7·0V Heater

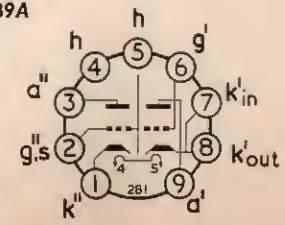
Rating (each section)

$P_{a(max)}$	2	W

Characteristics (each section)

V_a	90	V
V_g	−1·5	V
I_a	12	mA
g_m	6	mA/V
μ	24	

B9A



PCC89

Frame Grid Double Triode
VHF Cascode
Variable-mu Amplifier
0·3A, 7·5V Heater

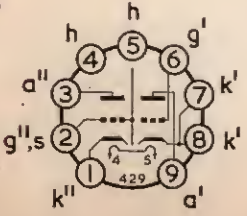
Rating (each section)

$P_{a(max)}$	1·8	W

Characteristics (each section)

V_a	90	V
V_g	−1·2	V
I_a	15	mA
g_m	12·3	mA/V

B9A



PCC189

Frame Grid Double Triode
VHF Cascode
Variable-mu Amplifier
0·3A, 7·6V Heater

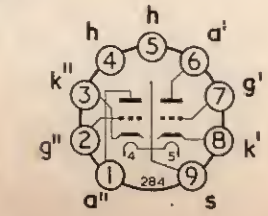
Ratings (each section)

$P_{a(max)}$	1·8	W

Characteristics (each section)

V_a	90	V
V_g	−1·4	V
I_a	15	mA
g_m	12·5	mA/V
r_a	2·5	kΩ
μ	34	
$V_g(g_m/_{100})$	−9	V

B9A



PCC806

Frame Grid Double Triode
VHF Cascode
Variable-mu Amplifier
0·3A, 7·2V Heater

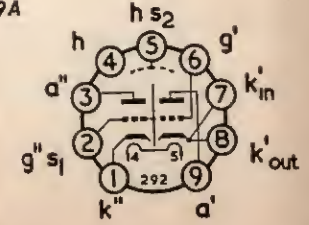
Rating (each section)

$P_{a(max)}$	1·6	W

Characteristics (each section)

V_a	75	V
V_g	0·75	V
I_a	15	mA
g_m	16·5	mA/V
μ	40	

B9A



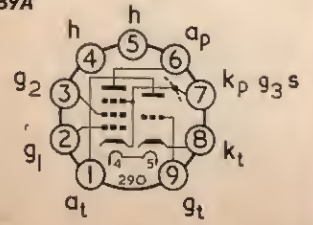
PCF80

VHF Triode Pentode
Frequency Changer
0·3A, 9V Heater

Typical Operation

	Triode	Pentode	
V_a	120	170	V
V_{g2}	...	145	V
$v_{het(pk)}$	...	5	V
I_a	6	6·8	mA
I_{g2}	...	2	mA
R_g	...	33	kΩ
g_c	...	2·0	mA/V
μ	20	...	

B9A



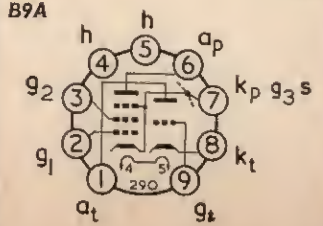
PCF82

VHF Triode Pentode
Frequency Changer
0·3A, 9·5V Heater

Typical Operation

	Triode	Pentode	
V_a	100	170	V
V_{g2}	...	110	V
R_{g1}	27	270	kΩ
I_a	7	5·5	mA
I_{g2}	...	2·0	mA
g_c	...	1·6	mA/V
$v_{het(pk)}$	...	3	V

B9A

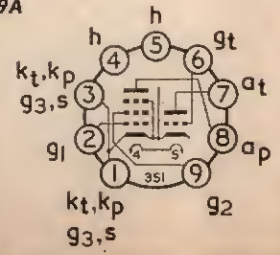


PCF86

Triode Frame Grid Pentode
VHF Frequency Changer
0·3A, 8V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1·5	2	W
Typical Operation			
V_a	100	190	V
V_{g2}	...	140	V
V_{g1}	−3	...	V
I_a	14	8·5	mA
I_{g2}	...	2·7	mA
R_{g1}	...	100	kΩ
g_c	...	4·5	mA/V
g_m	5·7	...	mA/V

B9A



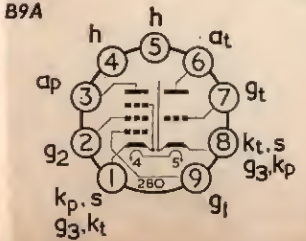
PCF87

Frame Grid Triode Pentode
VHF Variable-mu F.C.
0·3A, 7·4V Heater

Typical Operation

	Triode	Pentode	
V_a	60	160	V
V_{g2}	...	150	V
I_a	7	7·3	mA
I_{g2}	...	1·8	mA
R_{g1}	47	2200	kΩ
R_{g2}	...	27	kΩ
R_a	...	5·6	kΩ
g_c	...	4·8	mA/V
g_m	5·5	...	mA/V
μ	20	...	

B9A



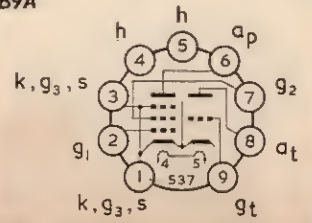
PCF801

Triode Frame Grid Pentode
VHF Variable-mu F.C.
0·3A, 8·5V Heater

Typical Operation

	Triode	Pentode	
V_b	200	200	V
V_{g1}	−3	−1·4	V
I_a	16	10	mA
I_{g2}	...	3	mA
R_a	8·2	2·7	kΩ
R_{g2}	...	27	kΩ
R_{g1}	10	0·1	MΩ
g_c	...	5	mA/V
g_m	3·7	...	mA/V
μ	20	...	

B9A

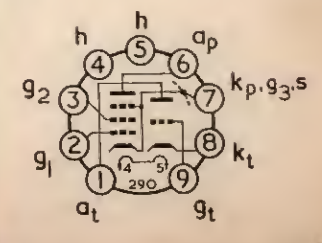


PCF802

Pentode Line Oscillator
Triode Reactance Valve
0·3A, 9V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1·5	1·2	W
Characteristics			
V_a	200	100	V
V_{g2}	...	100	V
V_{g1}	−2	−1	V
I_a	3·5	6	mA
I_{g2}	...	1·7	mA
g_m	3·5	5·5	mA/V
r_a	20	400	kΩ

B9A



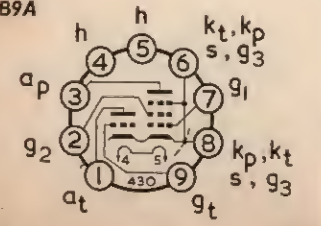
PCF805

Triode Frame Grid Pentode
VHF Variable-mu
Frequency Changer
0·3A, 7·4V Heater

Typical Operation

	Triode	Pentode	
V_a	77	155	V
V_{g2}	...	135	V
I_a	7·8	7·8	mA
I_{g2}	...	2·4	mA
R_{g1}	47	2,200	k Ω
R_{g2}	...	27	k Ω
R_a	...	5·6	k Ω
g_c	...	4·7	mA/V
g_m	5·5	...	mA/V
μ	17	...	

B9A

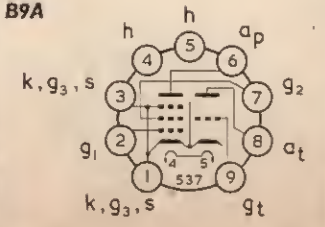


PCF806

Triode Frame Grid Pentode
VHF Frequency Changer
0·3A, 8V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1·5	2	W
Characteristics			
V_a	100	170	V
V_{g2}	...	150	V
V_{g1}	−3	−1·2	V
I_a	14	10	mA
I_{g2}	...	3·3	mA
g_m	5·5	12	mA/V
r_a	...	>350	k Ω
μ	17	...	

B9A

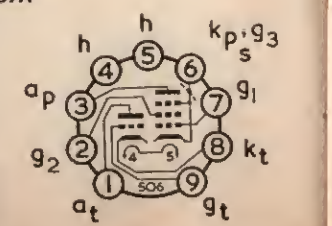


PCF808

Triode Pentode
HF Amp and Scanning Osc
0·3A, 7·4V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	2·0	2·0	W
Characteristics			
V_a	100	160	V
V_{g2}	...	160	V
V_{g1}	−3·0	−1·7	V
I_a	14	12	mA
I_{g2}	...	4·0	mA
g_m	5·5	14·5	mA/V
r_a	3·1	...	k Ω
μ	17	...	

B9A

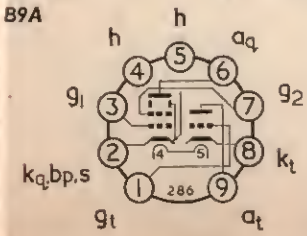


PCL82

Triode Output Pentode
Audio or Field Output
0·3A, 16V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1	7	W
Typical Operation (Pentode)			
V_a	100	170	V
V_{g2}	...	170	V
V_{g1}	0	−11·5	V
I_a	3·5	41	mA
I_{g2}	...	8	mA
R_a	...	3·9	k Ω
R_k	...	230	Ω
g_m	2·5	7·5	mA/V
P_{out}	...	3·3	W

B9A

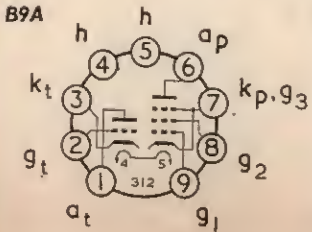


PCL83

Triode Output Pentode
Audio or Field Output
0·3A, 12·6V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	3·5	5·4	W
Characteristics			
V_a	250	170	V
V_{g2}	...	170	V
V_{g1}	−8·5	−9·5	V
I_a	10·5	30	mA
I_{g2}	...	5	mA
g_m	2·2	5·5	mA/V
r_a	7·7	53	k Ω
R_a	...	5·5	k Ω
P_{out}	...	2·2	W

B9A

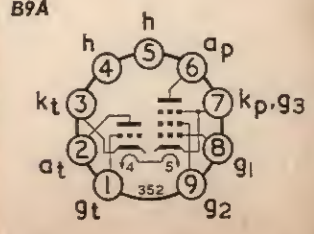


PCL84

Triode Pentode
Video Output
0·3A, 15V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1	4	W
Characteristics			
V_a	200	200	V
V_{g2}	...	200	V
V_{g1}	−1·7	−2·9	V
I_a	3	18	mA
I_{g2}	...	3	mA
g_m	4·0	10·4	mA/V
r_a	16·2	130	k Ω
μ	65	...	

B9A

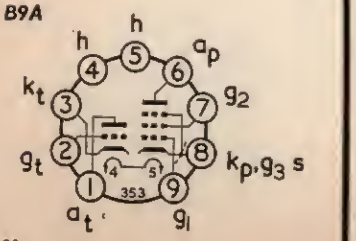


PCL85

Triode Pentode
Field Output
0·3A, 18V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	0·5	7	W
Characteristics			
V_a	100	170	V
V_{g2}	...	170	V
V_{g1}	−0·85	−15	V
I_a	5	41	mA
g_m	5·5	7·5	mA/V
μ	60	...	

B9A

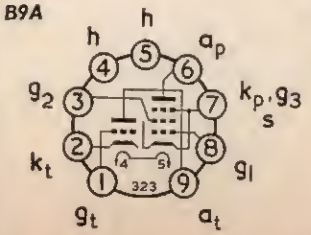


PCL86

Triode Pentode
Audio Amplifier and Output
0·3A, 13·6V Heater

Rating	Triode	Pentode	
$P_{a(max)}$	0·5	9	W
Typical Operation			
V_a	200	230	V
V_{g2}	...	230	V
V_{g1}	...	−5·7	V
I_a	0·42	39	mA
I_{g2}	...	6·5	mA
R_a	220	5·6	kΩ
R_{g1}	10	...	MΩ
R_k	...	120	Ω
g_m	...	10·5	mA/V
μ	100	...	
P_{out}	...	3·8	W

B9A

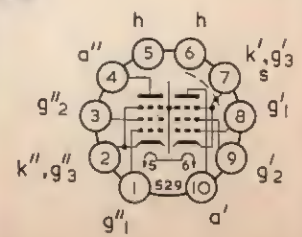


PFL200

Double Pentode
Sync. Sep. and Video Output
0·3A, 16·5V Heater

Ratings	F Section″	L Section′	
$P_{a(max)}$	1·5	5	W
Characteristics			
V_a	150	170	V
V_{g2}	150	170	V
V_{g1}	−2·3	−2·6	V
I_a	10	30	mA
I_{g2}	3	6·5	mA
g_m	8·5	21	mA/V
μ_{g1-g2}	35	32	
r_a	160	40	kΩ

B10B



PL36

Line Output Pentode
0·3A, 25V Heater

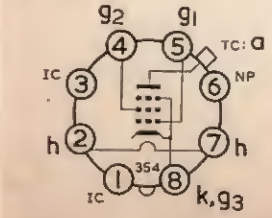
Rating

$P_{a(max)}$	12	W

Characteristics

V_a	100	V
V_{g2}	100	V
V_{g1}	−8·2	V
I_a	100	mA
I_{g2}	7	mA
g_m	14	mA/V
r_a	5	kΩ

Int. Octal



PL81

Line Output Pentode
0·3A, 21·5V Heater

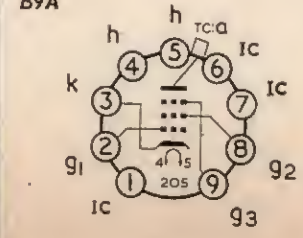
Rating

$P_{a(max)}$	8	W
$P_a + P_{g2(max)}$	10	W

Characteristics

V_a	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−22	V
I_a	45	mA
I_{g2}	3	mA
g_m	6·2	mA/V

B9A



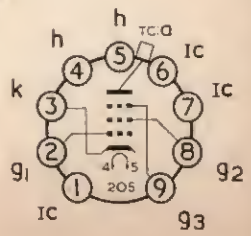
PL81A

Line Output Pentode
Portable Television Receivers
0·3A, 21·5V Heater

Characteristics

V_a	170	V
V_{g2}	170	V
V_{g1}	−24·3	V
I_a	45	mA
I_{g2}	2·2	mA
g_m	6·2	mA/V
r_a	13	kΩ

B9A



PL82

Audio or Field Output Pentode
0·3A, 16·5V Heater

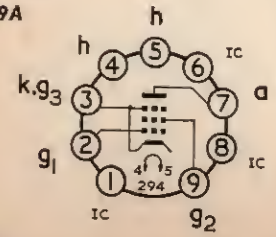
Rating

$P_{a(max)}$	9	W

Typical Operation

V_a	200	V
V_{g2}	200	V
V_{g1}	−14·4	V
$I_{a(o)}$	45	mA
$I_{g2(o)}$	8·5	mA
R_a	4	k Ω
g_m	7·6	mA/V
r_a	24	k Ω
P_{out}	4·2	W

B9A



PL83

Video Output Pentode
0·3A, 15V Heater

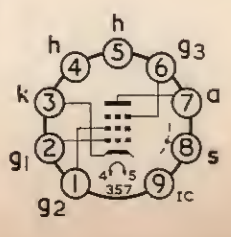
Rating

$P_{a(max)}$	9	W

Characteristics

V_a	170	V
V_{g3}	0	V
V_{g2}	170	V
V_{g1}	−2·3	V
I_a	36	mA
I_{g2}	5	mA
g_m	10·5	mA/V
r_a	100	k Ω

B9A



PL84

Field Output Pentode
0·3A, 15V Heater

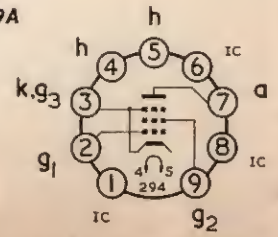
Rating

$P_{a(max)}$	12	W

Typical Operation

V_a	170	V
V_{g2}	170	V
I_a	70	mA
I_{g2}	5	mA
V_{g1}	−12·5	V
g_m	10	mA/V
r_a	23	k Ω
R_a	2·2	k Ω
P_{out}	5·2	W

B9A



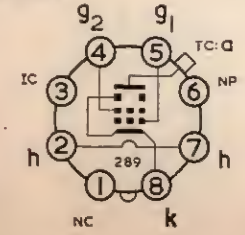
PL302

Beam Tetrode
Line Output
0·3A, 25V Heater

Ratings

$P_{a(max)}$ ($P_{g2} \leqslant 4$ W)	11	W
$P_{g2(max)}$ ($P_a \leqslant 7$ W)	5	W
$V_{a(max)}$	250	V
$V_{g2(max)}$	250	V
$V_{h-k(r.m.s.)max}$	200	V
$I_{k(max)}$	200	mA
$v_{a(pk+)max}$	7	kV

Int. Octal



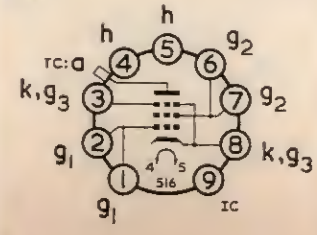
PL500

Line Output Pentode
0·3A, 27V Heater

Ratings

$P_{a(max)}$ ($P_{g2} \leqslant 4$ W)	12	W
$P_{g2(max)}$ ($P_a \leqslant 8$ W)	5	W
$V_{a(max)}$	250	V
$V_{g2(max)}$	250	V
$v_{a(pk)max}$	7	kV
$V_{h-k(r.m.s.)max}$	220	V
$I_{k(max)}$	250	mA

B9D



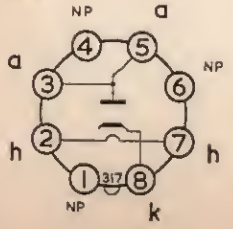
PY32

Half Wave Rectifier
0·3A, 29V Heater

Typical Operation

I_a	300	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	242	V
P.I.V.max	700	V
C_{res}	100	μF
R_{lim}	35	Ω

Int. Octal



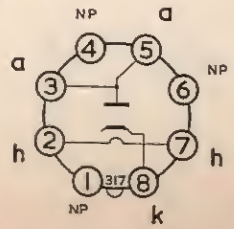
PY33

Half Wave Rectifier
0·3A, 29V Heater

Typical Operation

I_a	325	mA
$V_{in(r.m.s.)}$	250	V
P.I.V.max	700	V
C_{res}	200	μF

Int. Octal



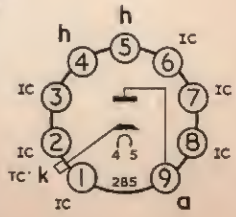
PY81

Efficiency Diode
0·3A, 17V Heater

Ratings

P.I.V.max	4·75	kV
$I_{a(av)max}$	150	mA
$V_{h-k(pk)max}$	4·75	kV

B9A



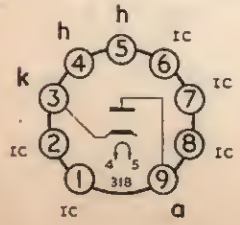
PY82

Half Wave Rectifier
0·3A, 19V Heater

Typical Operation

I_a	180	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	195	V
P.I.V.max	700	V
C_{res}	60	μF
R_{lim}	125	Ω

B9A



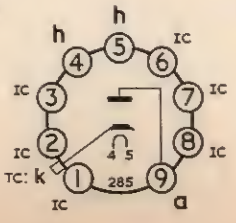
PY83

Efficiency Diode
0·3A, 20V Heater

Ratings

P.I.V.max	5	kV
$I_{a(max)}$	175	mA
$V_{h-k(pk)max}$	5	kV

B9A



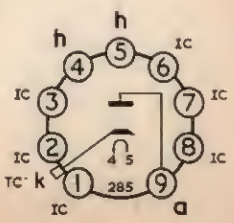
PY88

Efficiency Diode
0·3A, 30V Heater
For use with 110° tubes

Ratings

P.I.V.max	6·6	kV
$I_{a(av)max}$	220	mA
$V_{h-k(pk)max}$	6·6	kV

B9A



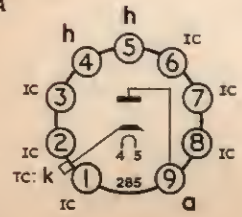
PY800

Efficiency Diode
0·3A, 19V Heater
For use with 110° tubes

Ratings

P.I.V.max	5·25	kV
$I_{a(max)}$	150	mA
$i_{a(pk)max}$	350	mA
$V_{h-k(pk)max}$	5·75	kV

B9A



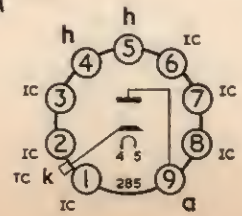
PY801

Efficiency Diode
0·3A, 19V Heater
For use with 110° tubes

Ratings

P.I.V.max	5·5	kV
$I_{a(max)}$	150	mA
$i_{a(pk)max}$	450	mA
$V_{h-k(pk)max}$	5·5	kV

B9A



SP41

VHF Pentode
4V, 0·95A Heater

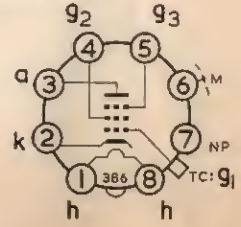
Rating

$P_{a(max)}$	4·5	W

Typical Operation

$V_{a(b)}$	200	V
V_{g3}	0	V
V_{g2}	200	V
V_{g1}	−1·5	V
I_a	10·9	mA
I_{g2}	2·7	mA
g_m	8·5	mA/V
r_a	700	k Ω

Mazda Octal



SP61

VHF Pentode
6·3V, 0·6A Heater

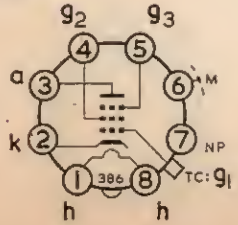
Rating

$P_{a(max)}$	4·5	W

Typical Operation

$V_{a(b)}$	200	V
V_{g3}	0	V
V_{g2}	200	V
V_{g1}	−1·5	V
I_a	10·9	mA
I_{g2}	2·7	mA
g_m	8·5	mA/V
r_a	700	k Ω

Mazda Octal



U25

EHT Rectifier
2V, 0·2A Heater

Ratings (Pulse Operation)

P.I.V.max	19	kV
$i_{a(pk)max}$	25	mA
$I_{a(max)}$	0·2	mA
V_{out}	16	kV

Wired in

U26

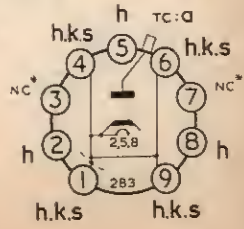
EHT Rectifier
2V, 0·35A Heater

Ratings (Pulse Operation)

P.I.V.max	23·5	kV
$I_{a(max)}$	0·2	mA
$i_{a(pk)max}$	60	mA

B9A

**Pins 3 and 7 must not be left unconnected. They should be connected to adjacent heater pins 4 and 6 respectively.*



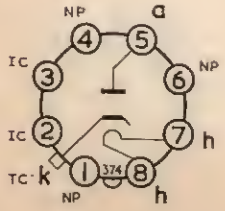
U191

Efficiency Diode
0·3A, 19V Heater

Ratings

$P.I.V._{max}$	5	kV
$I_{a(max)}$	150	mA
$i_{a(pk)max}$	450	mA
$v_{h-k(pk)max}$	5	kV

Int. Octal



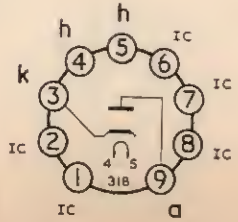
U192

H.W. Rectifier
0·3A, 19V Heater

Typical Operation

I_a	180	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	195	V
$P.I.V._{max}$	700	V
C_{res}	60	μF
R_{lim}	125	Ω

B9A



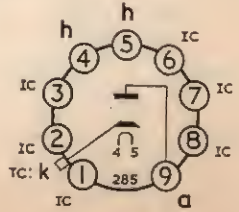
U193

Efficiency Diode
0·3A, 19V Heater
For use with 110° tubes

Ratings

$P.I.V._{max}$	5·5	kV
$I_{a(max)}$	150	mA
$i_{a(pk)max}$	450	mA
$v_{h-k(pk)max}$	5·5	kV

B9A



U251

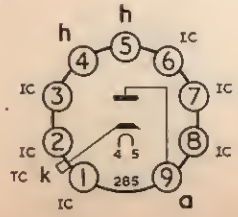
Efficiency Diode
0·3A, 25V Heater

Ratings

$P.I.V._{max}$	7	kV
$I_{a(max)}$	120	mA
$V_{h-k(max)}$	2	kV

Rating applies only to use as an Efficiency Diode.

B9A



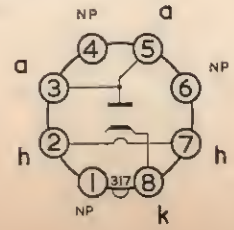
U291

H.W. Rectifier
0·3A, 29V Heater

Typical Operation

I_a	300	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	242	V
$P.I.V._{max}$	700	V
C_{res}	100	μF
R_{lim}	35	Ω

Int. Octal



U301

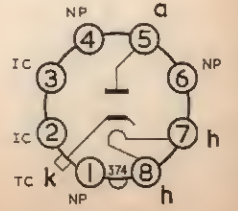
Efficiency Diode
0·2A, 28V Heater

Ratings

$P.I.V._{max}$	4·5	kV
$I_{a(max)}$	150	mA
$V_{h-k(max)}$	900	V

Rating applies only to use as an Efficiency Diode.

Int. Octal



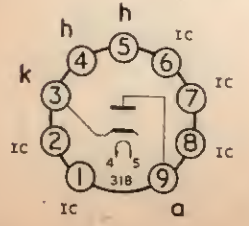
U381

H.W. Rectifier
0·1A, 38V Heater

Typical Operation

I_a	110	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	245	V
P.I.V.max	700	V
C_{res}	100	μF
R_{lim}	100	Ω

B9A



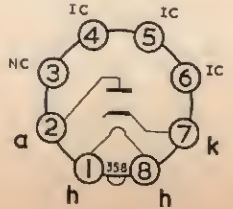
U404

Half Wave Rectifier
0·1A, 40V Heater

Typical Operation

I_a	90	mA
$V_{in(r.m.s.)}$	240	V
V_{out}	200	V
P.I.V.max	750	V
C_{res}	50	μF
R_{lim}	180	Ω

B8A



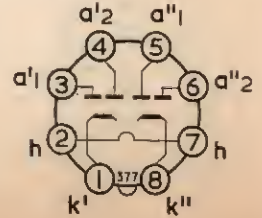
U801

Multiple Rectifier
0·2A, 80V Heater

Typical Operation

$I_{a\ (tot)}$	300	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	280	V
P.I.V.max	1,500	V
C_{res}	80	μF
R_{lim} (per anode)	47	Ω

Int. Octal



UABC80

Triple Diode Triode
0·1A, 28V Heater

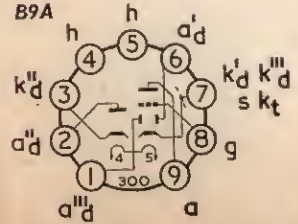
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	200	V
V_g	−2·3	V
I_a	1	mA
r_a	50	k Ω
g_m	1·4	mA/V
μ	70	

B9A



UBC41

Double Diode Triode
Audio Amplifier
0·1A, 14V Heater

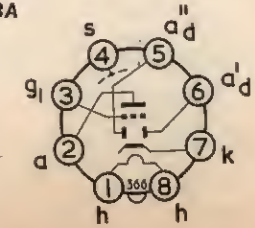
Rating (Triode)

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	k Ω
g_m	1·4	mA/V
μ	75	

B8A



UBC81

Double Diode Audio Triode
0·1A, 14V Heater

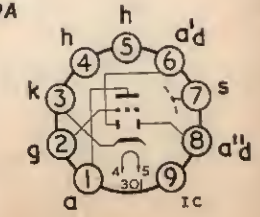
Rating

$P_{a(max)}$	1	W

Characteristics (Triode)

V_a	100	V
V_g	−0·7	V
I_a	0·8	mA
r_a	54	k Ω
g_m	1·4	mA/V
μ	75	

B9A



UBF89

Double Diode HF Pentode
Variable-mu Amplifier
0·1A, 19V Heater

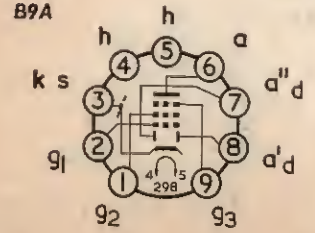
Rating (Pentode)

$P_{a(max)}$	2·25	W

Typical Operation (Pentode)

V_a	200	V
V_{g2}	100	V
V_{g1}	−1·5	V
I_a	11	mA
I_{g2}	3·3	mA
R_{g2}	30	kΩ
R_k	105	Ω
g_m	4·5	mA/V

B9A



UCC85

VHF Double Triode
0·1A, 26V Heater

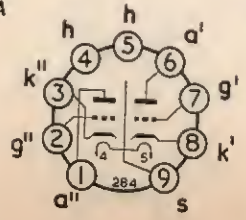
Rating

$P_{a(max)}$	(Either)	2·5	W
	(Both)	4·5	W

Typical Operation

	Amp.	Osc/mix	
$V_{a(b)}$	170	170	V
V_g	−1·4	...	V
I_a	8·7	4·8	mA
R_a	1·5	4·7	kΩ
R_g	...	1	MΩ
g_m	6	...	mA/V
g_c	...	2·2	mA/V
μ	50	...	

B9A



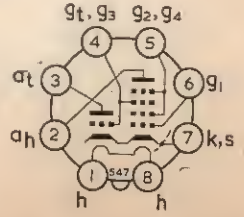
UCH42

HF Triode Hexode
Frequency Changer
0·1A, 14V Heater

Typical Operation

	Triode	Hexode	
$V_{a(b)}$	200	200	V
V_{g2+g4}	...	85	V
V_{g1}	0	−2	mV
I_a	5·2	3	mA
I_{g2+g4}	...	3	mA
R_a	22	...	kΩ
R_g	47	...	kΩ
R_k	...	180	Ω
g_c	...	0·75	mA/V

B8A



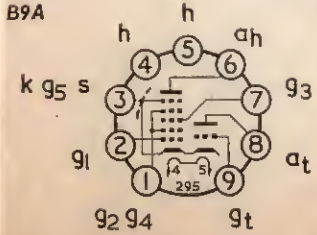
UCH81

HF Triode Heptode
Frequency Changer
0·1A, 19V Heater

Typical Operation

	Triode	Heptode	
V_a	103	170	V
V_{g2}	...	102	V
V_{g1}	0	−2·2	V
I_a	4·5	3·2	mA
I_{g2}	...	6·8	mA
R_a	15	...	kΩ
R_{g2+g4}	...	10	kΩ
R_{g3+gt}	47		kΩ
R_k	150		Ω
g_c	...	0·75	mA/V

B9A

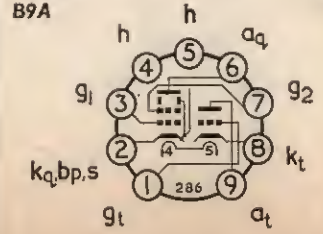


UCL82

Triode Pentode
Audio Output
0·1A, 50V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	1	7	W
Characteristics			
V_a	100	200	V
V_{g2}	...	200	V
V_{g1}	0	−16	V
I_a	3·5	35	mA
I_{g2}	...	7	mA
R_a	...	5·6	kΩ
R_k	...	390	Ω
g_m	2·5	6·4	mA/V
P_{out}	...	3·5	W

B9A

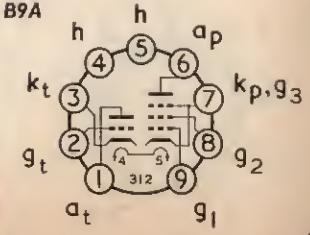


UCL83

Triode Output Pentode
Audio Output
0·1A, 38V Heater

	Triode	Pentode	
Rating			
$P_{a(max)}$	3·5	5·4	W
Characteristics			
V_a	170	170	V
V_{g2}	...	170	V
V_{g1}	−1·5	−9·5	V
I_a	1·6	30	mA
I_{g2}	...	5	mA
g_m	2·1	5·5	mA/V
r_a	40	53	kΩ
μ	82	...	

B9A



UF89

HF Pentode
Variable-mu Amplifier
0·1A, 12·6V Heater

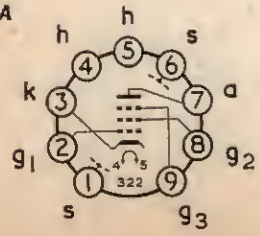
Rating

$P_{a(max)}$	2·25	W

Typical Operation

$V_{a(b)}$	170	V
V_{g2}	110	V
V_{g1}	−2	V
I_a	11	mA
I_{g2}	3·9	mA
g_m	3·8	mA/V
r_a	450	k Ω

B9A



UL41

Audio Output Pentode
0·1A, 45V Heater

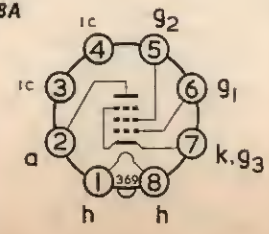
Rating

$P_{a(max)}$	9	W

Typical Operation

V_a	170	V
V_{g2}	170	V
V_{g1}	−10·4	V
I_a	53	mA
I_{g2}	10	mA
R_a	3	k Ω
r_a	20	k Ω
g_m	9·5	mA/V
P_{out}	4·2	W

B8A



UL84

Audio Output Pentode
0·1A, 45V Heater

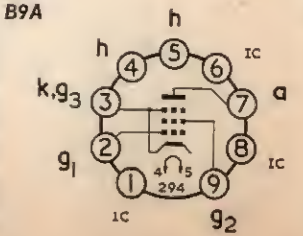
Rating

$P_{a(max)}$	12	W

Typical Operation

V_a	160	V
V_{g2}	170	V
V_{g1}	−12·5	V
$I_{a(o)}$	70	mA
$I_{g2(o)}$	5	mA
R_a	2·2	k Ω
r_a	23	k Ω
g_m	10	mA/V
P_{out}	5·2	W

B9A



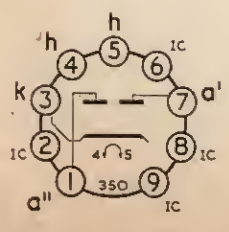
UU12

F.W. Rectifier
6·3V, 1·0A Heater

Typical Operation

I_a	150	mA
$V_{in(r.m.s.)}$	350	V
V_{out}	352	V
C_{res}	50	μF
R_{lim}	230	Ω

B9A



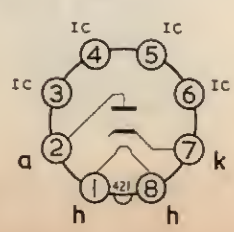
UY41

Half Wave Rectifier
0·1A, 31V Heater

Typical Operation

I_a	100	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	200	V
$v_{h-k(pk)max}$	550	V
C_{res}	50	μF
R_{lim}	210	Ω

B8A



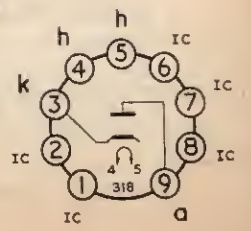
UY85

Half Wave Rectifier
0·1A, 38V Heater

Typical Operation

I_a	110	mA
$V_{in(r.m.s.)}$	250	V
V_{out}	245	V
P.I.V.max	700	V
C_{res}	100	μF
R_{lim}	100	Ω

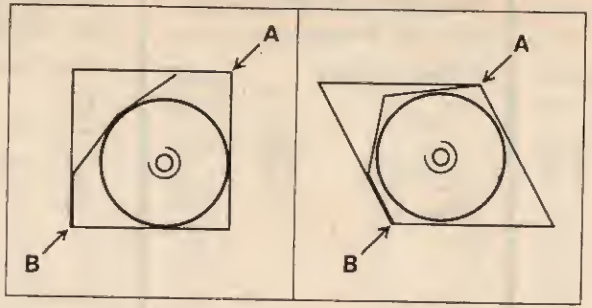
B9A



UNPACKING VALVES

MAZDA Continental Cartons can save you time on both unpacking and re-packing valves. This is especially valuable to the Field Service Engineer.

Used for Valves with Bases
B7G
B8A
B8D
B9A
B10B



MAZDA
CONTINENTAL CARTONS introduced March 1965

QUICK PROCEDURE

1. Open the carton at one end.
2. Squeeze the carton diagonally at corners A and B so as to bow the shock absorber partition away from the valve. Do not squeeze too hard.
3. Turn the carton upside down and shake the valve out into your hand. There is no loose internal packing.

MAZDA CONTINENTAL CARTONS SAVE 36% SPACE

MAZDA COLOUR TV TUBE Development No. V3503. 25" Rectangular aluminised screen. Three gun shadow mask type. 90° deflection. Electrostatic focus. Tinted glass—70% light transmission.
MADE IN BRIMSDOWN, ENGLAND

CURRENT AND MAINTENANCE TYPES

MAZDA

PICTURE TUBES

for Television

ALL BASE DIAGRAMS ARE VIEWED FROM THE FREE END OF PINS
see page 8 for EUROPEAN NOMENCLATURE

A47–13W

CME1906

19 in. TWIN PANEL
Self-Protected
0·3A, 6·3V Heater

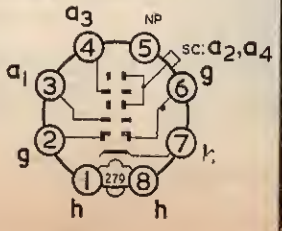
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Tinted bulb and panel, light transmission 65%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 317 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



A47–14W

CME1908

19 in. UNPROTECTED*
0·3A, 6·3V Heater

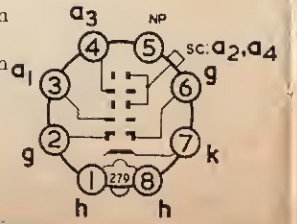
Features

- Dark Screen
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 50%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 309 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

A59–13W

CME2306

23 in. TWIN PANEL
Self-Protected
0·3A, 6·3V Heater

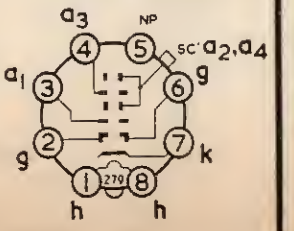
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Tinted bulb and panel, light transmission 40%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 374 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



A59–15W

CME2308

23 in. UNPROTECTED*
0·3A, 6·3V Heater

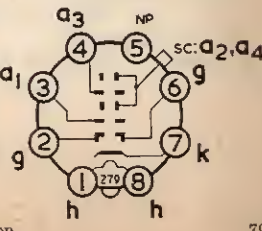
Features

- Dark screen
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 45%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 367 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

A65–11W

CME2501

25 in. RIMGUARD
Metal Shell Reinforced
0·3A, 6·3V Heater

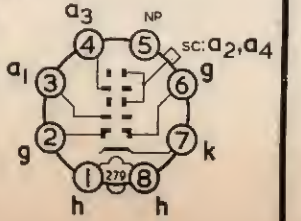
Features

- Integral mounting lugs
- 110° deflection
- Electrostatic focus
- External 'dag
- Aluminised screen
- Grey glass, light transmission approx. 42%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 389 mm

Typical Operation

V_{a2+a4}	18	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



AW47–90

CME1902

19 in. UNPROTECTED*
0·3A, 6·3V Heater

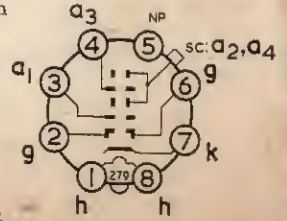
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 330 mm

Typical Operation

V_{a2+a4}	16	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−38 to −94	V

B8H Base,
CT8 side contact



* Requires implosion protection.

AW47–91

CME1903

19 in. UNPROTECTED*
0·3A, 6·3V Heater

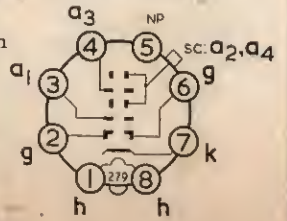
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 309 mm

Typical Operation

V_{a2+a4}	18	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

AW59–90

CME2302

23 in. UNPROTECTED*
0·3A, 6·3V Heater

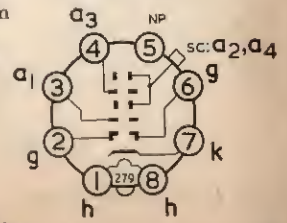
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 74%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 386 mm

Typical Operation

V_{a2+a4}	16	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−38 to −94	V

B8H Base,
CT8 side contact



* Requires implosion protection.

AW59–91

CME2303

23 in. UNPROTECTED*
0·3A, 6·3V Heater

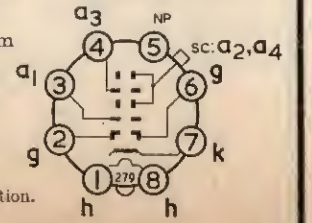
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 365 mm

Typical Operation

$V_{a_2+a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME141

14 in. UNPROTECTED*
0·3A, 12·6V Heater

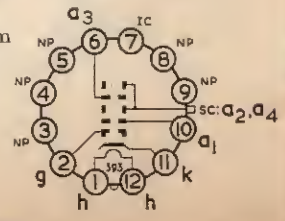
Features

- Rectangular face
- 70° deflection
- Electrostatic focus
- Ion-trap gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 76%
- Maximum Neck diameter 38 mm
- Maximum Overall length 420 mm

Typical Operation

$V_{a_2+a_4}$	12	kV
V_{a_1}	300	V
V_{a_3} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT8 side contact



* Requires implosion protection.

CME1101

11 in. RIMGUARD
Metal Shell Reinforced
0·3A, 6·3V Heater

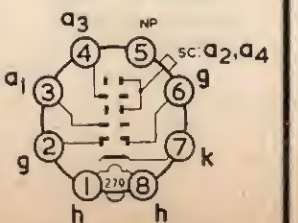
Features

- Integral mounting lugs
- Rectangular face
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 50%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 234 mm

Typical Operation

$V_{a_2+a_4}$	12	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−38 to −94	V

B8H Base,
CT8 side contact



CME1201

12 in. RIMBAND
Metal Band Reinforced
0·3A, 6·3V Heater

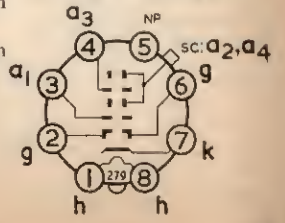
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External' dag
- Aluminised screen
- Grey glass, light transmission 50%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 243 mm

Typical Operation

$V_{a_2+a_4}$	12	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −76	V

B8H Base,
CT8 side contact



CME1402

14 in. UNPROTECTED*
0·3A, 12·6V Heater

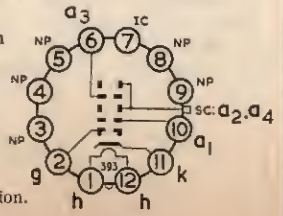
Features

- Rectangular face
- 90° deflection
- Electrostatic focus
- Ion-trap gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 78%
- Maximum Neck diameter 38 mm
- Maximum Overall length 371 mm

Typical Operation

$V_{a_2 + a_4}$	12	kV
V_{a_1}	300	V
V_{a_3} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B12A Base, CT8 side contact



* Requires implosion protection.

CME1601

16 in. UNPROTECTED*
0·3A, 6·3V Heater

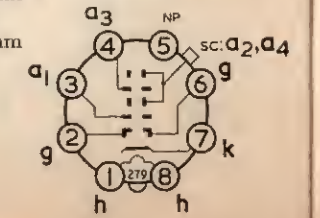
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 65%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 278·5 mm

Typical Operation

$V_{a_2 + a_4}$	16	kV
V_{a_1}	400	V
V_{a_3} (focus) av	220	V
V_g for cut-off	−40 to −77	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME1702

17 in. UNPROTECTED*
0·3A, 12·6V Heater

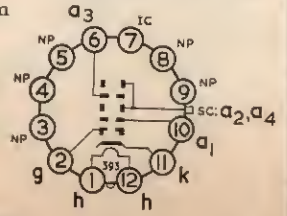
Features

- 90° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 74%
- Maximum Neck diameter 38 mm
- Maximum Overall length 383 mm

Typical Operation

$V_{a_2 + a_4}$	14	kV
V_{a_1}	300	V
V_{a_3} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B12A Base, CT8 side contact



* Requires implosion protection.

CME1703

17 in. UNPROTECTED*
0·3A, 12·6V Heater

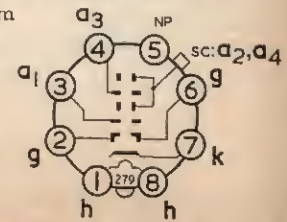
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 324 mm

Typical Operation

$V_{a_2 + a_4}$	14	kV
V_{a_1}	300	V
V_{a_3} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME1705

17 in. UNPROTECTED*
0·3A, 12·6V Heater

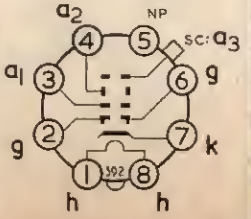
Features

Short neck
110° deflection
Electrostatic focus
Straight gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 29·4 mm
Maximum Overall length 290·5 mm

Typical Operation

V_{a_3}	15	kV
V_{a_1}	450	V
V_{a_2} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME1901

19 in. UNPROTECTED*
0·3A, 12·6V Heater

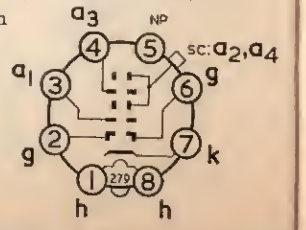
Features

114° deflection
Electrostatic focus
Straight gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 29·4 mm
Maximum Overall length 322 mm

Typical Operation

$V_{a_2 + a_4}$	16	kV
V_{a_1}	450	V
V_{a_3} (focus) av	180	V
V_g for cut-off	−38 to −72	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME1902

19 in. UNPROTECTED*
0·3A, 6·3V Heater

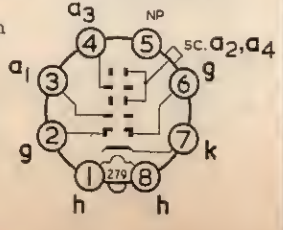
Features

110° deflection
Electrostatic focus
Straight gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 29·4 mm
Maximum Overall length 330 mm

Typical Operation

$V_{a_2 + a_4}$	16	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−38 to −94	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME1903

19 in. UNPROTECTED*
0·3A, 6·3V Heater

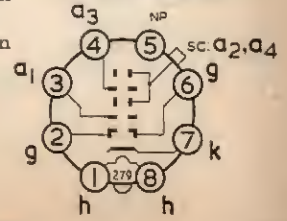
Features

Short neck
110° deflection
Electrostatic focus
Straight gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 29·4 mm
Maximum Overall length 309 mm

Typical Operation

$V_{a_2 + a_3}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME1905

19 in. RIMGUARD
Metal Shell Reinforced
0·3A, 6·3V Heater

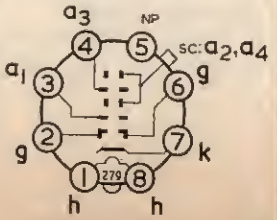
Features

- Integral mounting lugs
- 110° deflection
- Electrostatic focus
- External 'dag
- Aluminised screen
- Grey glass, light transmission 50%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 309 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



CME1906

19 in. TWIN PANEL
Self-Protected
0·3A, 6·3V Heater

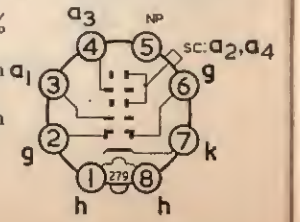
Features

- Glass twin panel
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, bulb and panel, light transmission 65%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 317 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



CME1908

19 in. UNPROTECTED*
0·3A, 6·3V Heater

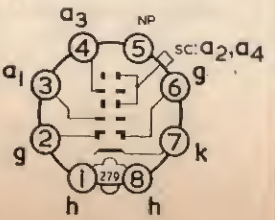
Features

- Dark screen
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 50%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 309 mm

Typical Operation

$V_{a_2 + a_4}$	18	kV
V_{a_1}	400	V
V_{a_3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME2101

21 in. UNPROTECTED*
0·3A, 12·6V Heater

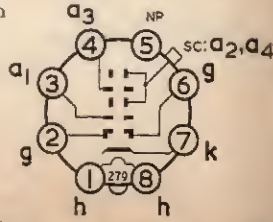
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 74%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 378 mm

Typical Operation

$V_{a_2 + a_4}$	14	kV
V_{a_1}	300	V
V_{a_3} (focus) av	100	V
V_g for cut-off	−30 to −72	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME2104

21 in. UNPROTECTED*
0·3A, 12·6V Heater

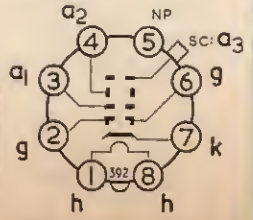
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 74%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 344·5 mm

Typical Operation

V_{a3}	16	kV
V_{a1}	450	V
V_{a2} (focus) av	120	V
V_g for cut-off	−30 to −72	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME2301

23 in. UNPROTECTED*
0·3A, 12·6V Heater

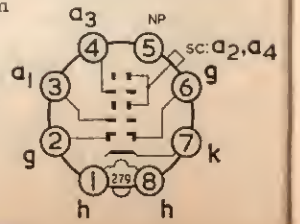
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 386 mm

Typical Operation

V_{a2+a4}	16	kV
V_{a1}	450	V
V_{a3} (focus) av	180	V
V_g for cut-off	−38 to −72	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME2302

23 in. UNPROTECTED*
0·3A, 6·3V Heater

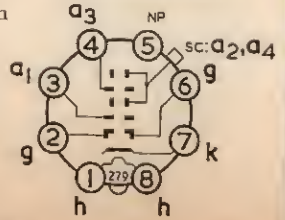
Features

- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 74%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 386 mm

Typical Operation

V_{a2+a4}	16	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−38 to −94	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME2303

23 in. UNPROTECTED*
0·3A, 6·3V Heater

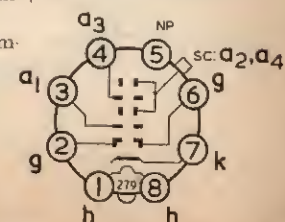
Features

- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 75%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 365 mm

Typical Operation

V_{a2+a4}	18	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base, CT8 side contact



* Requires implosion protection.

CME2305

23 in. RIMGUARD
Metal Shell Reinforced
0·3A, 6·3V Heater

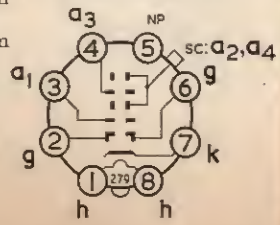
Features

- Integral mounting lugs
- 110° deflection
- Electrostatic focus
- External 'dag
- Aluminised screen
- Grey glass, light transmission approx. 45%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 367 mm

Typical Operation

V_{a2+a4}	18	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



CME2306

23 in. TWIN PANEL
Self-Protected
0·3A, 6·3V Heater

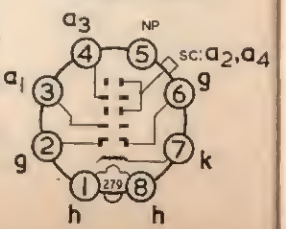
Features

- Glass twin panel
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, bulb and panel, light transmission 45%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 374 mm

Typical Operation

V_{a2+a1}	18	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



CME2308

23 in. UNPROTECTED*
0·3A, 6·3V Heater

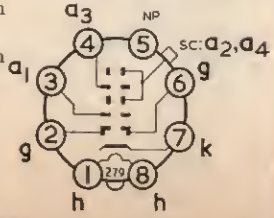
Features

- Dark screen
- Short neck
- 110° deflection
- Electrostatic focus
- Straight gun
- External 'dag
- Aluminised screen
- Grey glass, light transmission 45%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 367 mm

Typical Operation

V_{a2+a1}	16	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



* Requires implosion protection.

CME2501

25 in. RIMGUARD
Metal Shell Reinforced
0·3A, 6·3V Heater

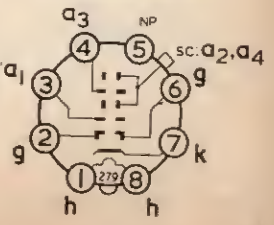
Features

- Integral mounting lugs
- 110° deflection
- Electrostatic focus
- External 'dag
- Aluminised screen
- Grey glass, light transmission approx. 42%
- Maximum Neck diameter 29·4 mm
- Maximum Overall length 389 mm

Typical Operation

V_{a2+a4}	16	kV
V_{a1}	400	V
V_{a3} (focus) av	200	V
V_g for cut-off	−40 to −77	V

B8H Base,
CT8 side contact



CRM141 & 142

14 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

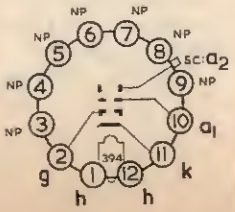
Features

Round face
67° deflection
Magnetic focus
Ion-trap gun
Aluminised screen
Clear bulb CRM141
Tinted bulb CRM142
Maximum Neck diameter 35 mm
Maximum Overall length 474 mm

Typical Operation

V_{a_2}	12	kV
V_{a_1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT2 side contact



* Requires implosion protection.

CRM144

14 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

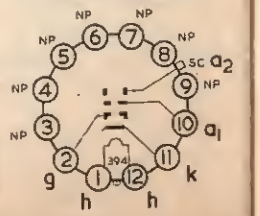
Features

Rectangular face
70° deflection
Magnetic focus
Ion-trap gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 38 mm
Maximum Overall length 438 mm

Typical Operation

V_{a_2}	12	kV
V_{a_1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT8 side contact



* Requires implosion protection.

CRM171 & 172

17 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

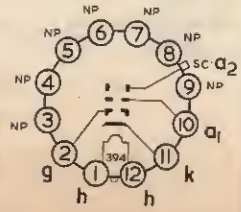
Features

70° deflection
Magnetic focus
Ion-trap gun
External 'dag CRM172 only
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 35 mm
Maximum Overall length 501 mm

Typical Operation

V_{a_2}	16	kV
V_{a_1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT2 side contact CRM171
CT8 side contact CRM172



* Requires implosion protection.

CRM173

17 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

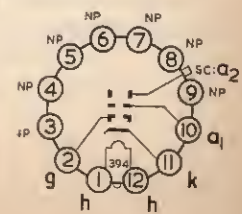
Features

90° deflection
Magnetic focus
Ion-trap gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 38 mm
Maximum Overall length 427 mm

Typical Operation

V_{a_2}	16	kV
V_{a_1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT8 side contact



* Requires implosion protection.

CRM211

21 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

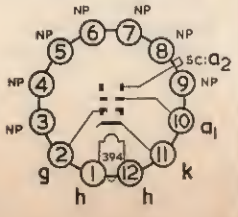
Features

70° deflection
Magnetic focus
Ion-trap gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 38 mm
Maximum Overall length 597 mm

Typical Operation

V_{a2}	18	kV
V_{a1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT8 side contact



* Requires implosion protection.

CRM212

21 in. UNPROTECTED*
Tetrode
0·3A, 12·6V Heater

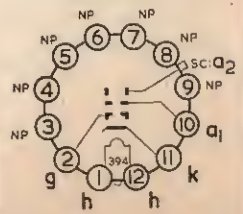
Features

90° deflection
Magnetic focus
Ion-trap gun
External 'dag
Aluminised screen
Grey glass, light transmission 75%
Maximum Neck diameter 38 mm
Maximum Overall length 520 mm

Typical Operation

V_{a2}	18	kV
V_{a1}	300	V
V_g for cut-off	−30 to −72	V

B12A Base,
CT8 side contact



* Requires implosion protection.

FENBRIDGE GUARDS ON MAZDA TUBES

Fenbridge Guards are used by many setmakers as a simple means of implosion protection in television receivers, replacing rigid windows. They are made of optical quality flexible PVC with a semi-polished outside surface and a "dew-drop" pattern inside to prevent adhesion or "Newtons Rings". There are two main types:

FENBRIDGE CAPS fitted to the CRT by a metal clamp band around the tube face perimeter.

FENBRIDGE POLYFLEX fitted to the cabinet as a flat membrane which is pushed into screen shape as the CRT is inserted.

Fenbridge Guards are supplied in various colours and values of light transmission according to setmaker requirements. Gold 65%. Blue Smoke 68%. Neutral Grey 78%. Clear 94–98%. Fenbridge Guards are not sold by Thorn–AEI Radio Valves & Tubes Limited.

CARE OF FENBRIDGE GUARDS

Indentations. Warm with hot air blower such as a hair dryer.

Minor Scratches. Polish out with jewellers rouge or non-abrasive polish such as Silvo. Do not use an abrasive metal polish. Polish the whole screen, not just the damaged area.

Major Scratches. Replace with a new Fenbridge Guard obtainable from the service organisation of the setmaker concerned.

Further Advice. Consult the component manufacturer Fenbridge Products Limited, Castle House, Lower King's Road, Berkhampstead, Herts. Telephone: Berkhampstead 756.

FITTING FENBRIDGE CAPS

Replacing CRT

1. It is preferable not to remove faulty CRT from set until new tube is to hand. This may avoid damage to Fenbridge Cap or loss of fittings. Goggles should be worn when handling unprotected tubes.
2. Remove old CRT from set with Fenbridge Cap attached. Remove Cap from CRT.
3. Clean the screen of the new CRT.
4. Clean inside surface of Fenbridge Cap. Remove dust by blowing—a cycle pump is suitable. Remove foreign bodies by a moistened finger tip. NEVER USE A DUSTER OR RAG.
5. Lay the Cap face downwards on a soft surface on the bench. Lay clamping band on bench around the Cap. Insert CRT screen into Cap and pull fixing band up into position.
6. Tighten band until it just begins to bite. Tension the Cap by pulling hard on the four corner "ears" in turn, then on each of the smaller side ears. A hook through the ear eyelets is best.
7. Fully tighten the fixing band. Clip small ears to fixing band in the same manner as that used by the setmaker concerned.
8. Re-fit tube (with cap attached) into the set and fix corner mounting lugs to cabinet. Some set-makers may also fix small ears to cabinet.

Replacing Fenbridge Cap

9. Remove CRT from set with damaged Cap attached. Remove Cap from tube and clean tube face.
10. Remove new Fenbridge Cap from returnable anti-shrinking polystyrene former and warm if necessary to increase flexibility.
11. Proceed as in 5 and 6.
12. Should any pockets of non-contact remain, they may be shrunk out by a hot air blower.
13. Finish off as in 7 and 8 above by clipping ears and refitting tube in set.

AVAILABLE TO ORDER

Obsolescent types are available from Mazda as long as stocks last, but no further manufacture of these types will take place.

For latest availability, consult your Mazda wholesaler or Mazda representative.

For further data on obsolescent types, please refer to earlier editions of this booklet.

MAZDA

OBSOLESCENT

VALVES and PICTURE TUBES

VALVE TYPE	DESCRIPTION	HEATER		TYPICAL OPERATION				
		V_h V	I_h A	$V_{a(b)}$ V	V_{g2} V	V_{g1} V	I_a mA	g_m mA/V
6C9	H.F. Triode Heptode	6·3	0·45	(T) 250 (H) 250	100	−2·5	5 3	2·2 (gc) 0·65
6D1	Signal Diode	6·3	0·15	350 P.I.V. max.	—	—	5	—
6F1	H.F. Screened Pentode	6·3	0·35	200	200	−1·8	10	9
6F13	H.F. Screened Pentode	6·3	0·35	200	200	−1·8	10	9
6F14	Video Output Pentode	6·3	0·35	250	135	−1·3	27	10·6
6F15	H.F. Screened Pentode	6·3	0·2	250	100	−2·5	7	2·3
6L18	H.F. Oscillator Triode	6·3	0·3	250	μ17	−5	4·5	7·6
6L34	V.H.F. Triode	6·3	0·3	250	—	−1·5	10	8·5
6LD20	Double Diode A.F. Triode	6·3	0·25	260	μ31·5	−3	2	3·4
6M1	Tuning Indicator Sector Display	6·3	0·3	250	V_t 250	−0·5	0·23	—
6P28	Line Output Beam Tetrode	6·3	1·1	350	250	−8·8	72	9·5

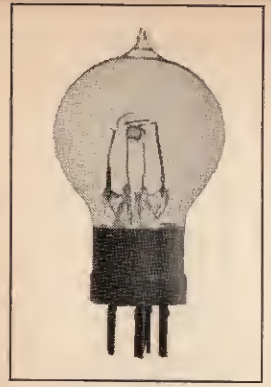
VALVE TYPE	BASE	PIN CONNECTIONS									
		1	2	3	4	5	6	7	8	9	TC
6C9	B8A	h	a_h	a_t	g_t, g_3	g_2, g_4	g_1	k, s, g_5	h	—	—
6D1	B8G	h	k	h	—	—	—	—	—	—	a
6F1	B8A	h	a	g_3, s	g_2	k	g_1	k	h	—	—
6F13	B8A	h	a	s	g_3	g_2	g_1	k	h	—	—
6F14	B8A	h	a	s	g_3	g_2	g_1	k	h	—	—
6F15	B8A	h	a	s	g_3	g_2	g_1	k	h	—	—
6L18	B8A	h	a	IC	s	IC	g	k	h	—	—
6L34	B7G	g	k	h	h	k	g	a	—	—	—
6LD20	B8A	h	a_t	g_1	s	a″ d	a′ d	k	h	—	—
6M1	I.Oct.	NP	h	a	t	g	NP	h	k	—	—
6P28	I.Oct.	NC	h	NC	g_2	g_1	NP	h	k	—	a

VALVE TYPE	DESCRIPTION	HEATER		TYPICAL OPERATION				
		V_h V	I_h A	$V_{a(b)}$ V	V_{g2} V	V_{g1} V	I_a mA	g_m mA/V
10C1	H.F. Triode Heptode	28	0·1	(T) 80 (H) 175	— 100	— −2·5	5 3	2·2 (gc) 0·65
10C2	V.H.F. Triode Pentode	28	0·1	(T) 80 (P) 135	μ17 135	$V_{het(pk)}$ 3·25	5 5	 (gc) 2
10D2	Signal Double Diode	19	0·1	P.I.V. 500	—	—	max. 9	—
10F9	H.F. Vari-mu Pentode	13	0·1	175	100	−2·5	7	2·3
10LD11	Double Diode Triode	15	0·1	150	—	−2·25	6	3·4
20F2	H.F. Pentode	11	0·2	250	135	−1·3	27	10·6
20P1	Line Output Beam Tetrode	38	0·2	150	150	—	100	7·3
SP42	A.F. Output Pentode	4	0·95	200	140	−1·25	27	—
T41	Thyratron	4	1·5A	Control Ratio 20 R_g 30 kΩ I_a(mean) 2·5 mA				
U281	T.V. Efficiency Diode	28	0·2	P.I.V. 3,000	—	—	max. 150	—
U282	T.V. Efficiency Diode	28	0·2	P.I.V. 4,500	—	—	max. 150	—
UU5	Full-Wave Rectifier	4	2·3	$V_{in(r.m.s.)}$ 500V V_{out} 580V C_{res} 8μF			120	—
UU8	Full-Wave Rectifier	4	2·8	350	C_{res} 16μF	R_{lim} 40Ω	—	250

VALVE TYPE	BASE	PIN CONNECTIONS									
		1	2	3	4	5	6	7	8	9	TC
10C1	B8A	h	a_h	a_t	g_t, g_3	g_2, g_4	g_1	k, s, g_5	h	—	—
10C2	B8A	h	a_p	a_t	g_t	g_2	g_1	k, s, g_3	h	—	—
10D2	B7G	k′	a″	h	h	k″	s	a′	—	—	—
10F9	B8A	h	a	s	g_3	g_2	g_1	k	h	—	—
10LD11	B8A	h	a	g_1	s	a″ d	a′ d	k	h	—	—
20F2	B8A	h	a	s	g_3	g_2	g_1	k	h	—	—
20P1	Int.Oct.	NC	h	NC	g_2	g_1	NP	h	k, bp	—	a
SP42	M.Oct.	h	k	a	g_2	g_3	M	NP	h	—	g_1
T41	M.Oct.	h	k	a	NC	g	M	NP	h	—	—
U281	I.Oct.	NC	h	NC	NP	a	NP	h	k	—	—
U282	I.Oct.	NC	NC	k	NP	NC	NP	h	h	—	a
UU5	Brit.4p	a′	a″	h, k	h	—	—	—	—	—	—
UU8	M.Oct.	h, k	NC	a′	NC	a″	NC or M	NC	h	—	—

TUBE TYPE	DESCRIPTION	HEATER		TYPICAL OPERATION		
		V_h Volts	I_h Amps	V_{g2} kV	V_{g1} Volts	V_{g1} for cut-off
CRM93	9″ Rnd, 57°, alum	12·6	0·3	9	300	−30 to −72
CRM121B	12″ Rnd, 57°	2	1·3	9	—	−45 to −98
CRM122	12″ Rnd, 57°	7·3	0·3	9	—	−45 to −98
CRM123	12″ Rnd, 57°, alum	2	1·3	9	—	−45 to −98
CRM124	12″ Rnd, 57°, alum	12·6	0·3	10	300	−30 to −72
CRM143	14″ Rect, 70°, alum	12·6	0·3	12	300	−30 to −72
CRM151	15″ Rnd, 51°, alum	2	1·3	12	—	−50 to −127
CRM152B	15″ Rnd, 67°, alum	2	1·4	12	—	−59 to −127
CRM153	15″ Rnd, 67°, alum	12·6	0·3	14	300	−30 to −72
CRM174	17″ Rect, 70°, alum	12·6	0·3	16	300	−30 to −72

TUBE TYPE	BASE	PIN CONNECTIONS												
		1	2	3	4	5	6	7	8	9	10	11	12	S.C.
CRM93	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	a_1	k	h	a_2
CRM121B	MO	h	NP	k	NP	g	NP	NP	h	—	—	—	—	a
CRM122	MO	h	NP	k	NP	g	NP	NP	h	—	—	—	—	a
CRM123	MO	h	NP	k	NP	g	NP	NP	h	—	—	—	—	a
CRM124	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	a_1	k	h	a_2
CRM143	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	a_1	k	h	a_2
CRM151	MO	h	NP	k	NP	g	NP	NP	h	—	—	—	—	a
CRM152B	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	NC	k	h	a
CRM153	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	a_1	k	h	a_2
CRM174	B12A	h	g	NP	NP	NP	NP	NP	NP	NP	a_1	k	h	a_2



Royal Ediswan ES1 bright emitter triode

One of the earliest production valves, made in the Ediswan Ponders End factory where the first prototype diodes in the world were made for Professor Fleming in 1904.

50 YEARS OF VALVE MANUFACTURE EDISWAN MAZDA

1916 to 1966

"Large scale production of valves began during the first world war when the Armed Forces wanted valves in quantity for radio communication. Quantity production was begun by Edison Swan and Cossor."

H.M. Stationery Office. Publication No. Wt1280 – 3395.

Ediswan MAZDA is now the only receiving valve manufacturer with fifty continuous years of valve-making experience.

UNOBTAINABLE

These types are now unobtainable from Mazda, but substitution information on a few selected types is given at the end of the Obsolete list.

Whilst every care is taken in the compilation of substitution information, no responsibility can be accepted for the results obtained.

This Obsolete List includes all known receiving valves formerly sold by Mazda or their predecessors, but which are no longer available. All types are Mazda unless otherwise stated.

Data on individual types is, in most cases, available on request from Mazda Valve Publicity Department.

MAZDA

OBSOLETE

VALVES and PICTURE TUBES

OBSOLETE VALVES

AC/DD	Detector Double Diode
AC/G	Cosmos (Green Spot) Shortpath Voltage Triode
AC/HL	Detector or AF Triode
AC/HL/DD	Double Diode AF Triode
AC/HL/DDD	Triple Diode AF Triode
AC/ME	Tuning Indicator
AC/P*	Detector or AF Triode
AC/P1	AF Triode
AC/P4	E/S Scanning Output Triode
AC/PA1	Cosmos AF Power Triode
AC/PA2	Cosmos AF Power Triode
AC/Pen (5 pin)	Audio Output Pentode
AC/Pen (7 pin)	Audio Output Pentode
AC/R	Cosmos (Red Spot) AF Power Shortpath Triode
AC/S	Cosmos HF Screened Grid
AC/S1/VM	Variable-mu HF Screened Grid
AC/S2	HF Screened Grid
AC/S2 Pen	HF Mixer Pentode
AC/SG	HF Screened Grid
AC/SG/VM	Variable-mu HF Screened Grid
AC/SP1	Noise or AFC Control Pentode
AC/SP3	VHF or Video Pentode
AC/TH1	HF Triode Heptode Mixer
AC/TH1A	HF Triode Heptode Mixer
AC/TP	HF Triode Pentode Mixer
AC/VP1 (5 pin)	Vari-mu HF Pentode
AC/VP1 (7 pin)	Vari-mu HF Pentode
AC/VP2	Vari-mu HF Pentode
AC/X	Cosmos HF Triode
AC2/HL	Detector or AF Triode
AC2/Pen	Audio Output Pentode
AC2/Pen/DD	Double Diode, AF Pentode
AC4/Pen	Audio Output Beam Tetrode
AC5/Pen	Audio Output Beam Tetrode
AC5/Pen/DD	Double Diode Beam Tetrode
AC6/Pen	Line Output Beam Tetrode
B2	B.T.H. AF Power Triode
B4	B.T.H. AF Voltage Triode
BD4	Mazda Mercury Rectifying Valve
BU10 to BU800/6	Ediswan Barretters
D1	TV Signal Diode
DC/HL	Detector or AF Triode
DC/P	AF Output Triode
DC/Pen	AF Output Pentode
DC/SG	HF Screened Grid
DC2/HL/DD	Double Diode AF Triode
DC2/P	AF Output Triode
DC2/Pen	AF Output Pentode
DC2/SG	HF Screened Grid
DC2/SG/VM	Variable-mu HF Screened Grid
DC3/HL	Detector or AF Triode
DD41	HF Signal Double Diode
DD101	HF Signal Double Diode
DD207	HF Signal Double Diode
DD620	HF Signal Double Diode
DE50	Cosmos General Purpose Triode
DF92	HF Battery Pentode

* This Mazda valve type holds the BBC record for the longest working life of any valve—232,592 hours between 1935 and 1961.

EC91	VHF Triode
EC92	VHF Triode
ECH35	HF Triode Hexode Mixer
EF41	Variable-mu HF Pentode
EL95	Audio Output Pentode
EM34	Tuning Indicator (Double Sector Display)
EM80	Tuning Indicator (Fan Display)
EM81	Tuning Indicator (Fan Display)
EM85	Tuning Indicator (Fan Display) See page 114
EZ40	FW Rectifier
EZ80	FW Rectifier
GP210	B.T.H. and Ediswan Detector Triode
GP407	B.T.H. GP Triode
GP607	B.T.H. GP Triode
FC141	HF Mixer Pentagrid
H2	HF or AF Triode
H141D	Diode AF Triode
H210	HF or AF Triode
H607	Detector and HF Triode
H610	HF or AF Triode
HF210	B.T.H. and Ediswan H.F. Triode
HF407	B.T.H. HF Triode
HF410	Ediswan HF Triode
HF607	B.T.H. HF Triode
HF610	Ediswan HF Triode
HL2	HF or AF Triode
HL21DD	Double Diode AF Triode
HL22	HF or AF Triode
HL22DD	Double Diode AF Triode
HL23	HF or AF Triode
HL23DD	Double Diode AF Triode
HL41	AF Triode
HL41DD	Double Diode AF Triode
HL42DD	Double Diode Vari-mu AF Triode
HL133	AF Triode
HL133DD	Double Diode AF Triode
HL210	HF or AF Triode
HL607	Detector and LF Amplifier
HL610	Detector and LF Amplifier
HL1320	Detector or AF Triode
HL/DD/1320	Double Diode AF Triode
HTB1	Ediswan Barretter for use with U222
L2	HF or AF Triode
L2DD	Double Diode AF Triode
L21DD	Double Diode AF Triode
L22DD	Double Diode AF Triode
L210	Amplifying Detector Triode
LF210	Ediswan GP Triode
LF215	AF Output Pentode
LF407	B.T.H. AF Triode
LF410	Ediswan AF and detector Triode
LF410A	Ediswan AF and detector Triode
M141LF	Ediswan AF Triode
M141RC	Ediswan Voltage amplifying Triode
ME41	Tuning Indicator
ME91	Tuning Indicator
ME920	Tuning Indicator

MU2	Ediswan EHT Mercury Vapour Rectifier
P41	VHF Oscillator Triode
P61	VHF Oscillator Triode
P215	AF Output Triode
P220	AF Output Triode
P220A	AF Output Triode
P227	AF Output Pentode
P240	AF Output Triode
P245	AF Output Triode
P415	AF Output Triode
P425	AF Output Triode
P615	AF Output Triode
P625A	AF Output Triode
P625B	AF Output Triode
P650	AF Output Triode
PA20	AF Output Triode
PA40	AF Class AB Output Triode
PD220	AF Class B Double Triode
PD220A	AF Class B Double Triode
Pen24	AF Output Pentode
Pen25	AF Output Pentode
Pen44	AF Output Beam Tetrode
Pen45	AF Output Beam Tetrode
Pen45DD	Double Diode Beam Tetrode
Pen46	Line Output Beam Tetrode
Pen141	AF Output Pentode
Pen220	AF Output Pentode
Pen220A	AF Output Pentode
Pen230	AF Output Pentode
Pen231	AF Output Pentode
Pen383	AF Output Beam Tetrode
Pen384	AF Output Beam Tetrode
Pen425	AF Output Pentode
Pen453DD	Double Diode Beam Tetrode
Pen1340	AF Output Pentode (car radio)
Pen3520	AF Output Pentode
Pen3820	AF Output Beam Tetrode
PenDD1360	Double Diode AF Pentode (car)
PenDD4020	Double Diode Output Pentode
PenDD4021	Double Diode Beam Tetrode
PP3/250	AF Output Triode
PP3/425	AF Output Triode
PP3/521	AF Output Triode
PP5/400	AF Output Triode
PV215	Ediswan Power Triode
PV225	Ediswan Power Triode
PV410	Ediswan Power Triode
PV425	Ediswan Power Triode
PV610	Ediswan Power Triode
PV625	Ediswan Power Triode
PX650	AF Output Pentode
QP25	Audio Output, Class B, Double Pentode
QP230	Audio Output, Class B, Double Pentode
QP240	Audio Output, Class B, Double Pentode
RC2	Ediswan GP Triode
RC210	Ediswan AF Triode
RC210	B.T.H. Detector Triode
RC410	Ediswan AF Triode

RC610	Ediswan AF Triode
RC607	B.T.H. Detector Triode
S215A	HF Screened Grid
S215B	HF Screened Grid
S215VM	Variable-mu HF Screened Grid
SG207	B.T.H. and Ediswan HF Screened Grid
SG215	HF Screened Grid
SG410	Ediswan HF Screened Grid
SG610	Ediswan HF Screened Grid
SP16/R	Cosmos (Red Spot) GP Shortpath Triode
SP16/G	Cosmos (Green Spot) HF Shortpath Triode
SP16/B	Cosmos (Blue Spot) HF High Gain Shortpath Triode
SP18/RR	Cosmos (Double Red Spot) AF Power Shortpath Triode
SP20/PA1	Cosmos AF Power Triode
SP22	HF Screened Pentode
SP41/U	Cosmos Half-wave Shortpath Rectifier
SP42/U	Cosmos Full-wave Shortpath Rectifier
SP43/U	Cosmos Half-wave Shortpath Rectifier
SP45/U	Cosmos Half-wave Shortpath Rectifier
SP141	HF Screened Pentode
SP181	HF Screened Pentode
SP210	HF Screened Pentode
SP215	HF Screened Pentode
SP610/G	Cosmos (Green Spot) Shortpath HF Triode
SP610/B	Cosmos (Blue Spot) Shortpath High Gain HF Triode
SP610/RR	Cosmos (Double Red Spot) Shortpath AF Power Triode
SP610/PA1	Cosmos Shortpath AF Power Triode
SP1320	HF Screened Pentode
SP2220	Noise or AFC Control Pentode
T11	Timebase Thyratron
T21	Timebase Thyratron
T31	Timebase Thyratron
TH41	HF Triode Heptode Mixer
TH233	HF Triode Heptode Mixer
TH2320	HF Triode Heptode Mixer
TH2321	HF Triode Heptode Mixer
TP22	HF Triode Pentode Mixer
TP23	HF Triode Pentode Mixer
TP25	HF Triode Pentode Mixer
TP26	HF Triode Pentode Mixer
TP1340	HF Triode Pentode Mixer (car radio)
TP2620	HF Triode Pentode Mixer
TS215	B.T.H. AF Triode
U21	Slow heating EHT Rectifier
U22	Slow heating EHT Rectifier
U24	EHT Rectifier
U30/250	HW Rectifier
U65/550	HW Rectifier

OBSOLETE VALVES

U75/300	HW Rectifier
U201	HW Rectifier
U222	Ediswan Full-wave Rectifier
U235	Ediswan Full-wave Rectifier
U403	HW Rectifier
U4020	HW Rectifier
UC92	HF Triode
UD41	HT Doubling Rectifier
UM35	Tuning Indicator (Maltese Cross)
U150/1100	Mazda Hot-Cathode Mercury Vapour Rectifier
UU2	FW Rectifier
UU3	FW Rectifier. Use UU5
UU4	FW Rectifier. Use UU5
UU6	FW Rectifier. See page 115
UU7	FW Rectifier. See page 115
UU9	FW Rectifier. See page 116
UU10	FW Rectifier
UU30/250	FW Rectifier
UU60/250	FW Rectifier. Use UU5
UU120/250	FW Rectifier. Use UU5
UU120/350	FW Rectifier. Use UU5
UU120/500	FW Rectifier. Use UU5
V226	HF Power Pentode
V312	AF Pre-amp Triode
V503	Class AB Output Triode
V914	HF Double Diode
VP22	Vari-mu HF Pentode
VP23	Vari-mu HF Pentode
VP41	Vari-mu HF Pentode
VP133	Vari-mu HF Pentode
VP210	Vari-mu HF Pentode
VP215	Vari-mu HF Pentode
VP1320	Vari-mu HF Pentode
VP1321	Vari-mu HF Pentode
VP1322	Vari-mu HF Pentode
1D13	Battery HF Diode
1F2	Battery HF Pentode
6C31	HF Triode Heptode
6D1	TV Signal Diode
6D3	Slow Heating Diode
6F11	HF Pentode
6F16	Variable-mu HF Pentode
6F20	Variable-mu HF Pentode
6F32	Screened HF Pentode (Industrial)
6L1	GP Double Triode for TV
6K23	Timebase Thyratron
6L19	AF Double Triode. See page 116
6M1	Tuning Indicator (Sector Display)
6M2	Tuning Indicator (Maltese Cross)
6P1	AF Output Beam Tetrode
6P26	AF Output Beam Tetrode
10F3	Screened HF Pentode
10L1	VHF Grounded Grid Triode
10M1	Tuning Indicator (Sector Display)
10M2	Tuning Indicator (Maltese Cross)
12E1	Ediswan Beam Tetrode Stabiliser
30C13	VHF Triode Pentode Mixer
30F27	VHF Variable-mu Tetrode
30FL13	Triode Beam Tetrode Sync Sep

OBSOLETE PICTURE TUBES

9MH	..	9 in. round, 45°, triode, not aluminised, clear glass, V_h 2·0 V
12MH	..	12 in. round, 45°, triode, not aluminised, clear glass, V_h 2·0 V
CME2307	..	23 in. Twin Panel See page 114
CRM71	..	7 in. round, 54°, triode, not aluminised, clear glass, V_h 2·0 V
CRM91	..	9 in. round, 64°, triode, not aluminised, clear glass, V_h 2·0 V
CRM92	..	9 in. round, 57°, triode, not aluminised, clear glass, V_h 2·0 V
CRM92A	..	9 in. round, 57°, triode, not aluminised, clear glass, V_h 2·0 V
CRM121	..	12 in. round, 57°, triode, not aluminised, clear glass, V_h 2·0 V
CRM121A	..	12 in. round, 57°, triode, not aluminised, clear glass, V_h 2·0 V
CRM152A	..	15 in. round, 67°, triode, aluminised, clear glass, V_h 2·0 V

SUBSTITUTION FOR CME2307
and 23SP4

CME2307 DATA

23 in. RECTANGULAR
All Glass Twin Panel
0·3A, 6·3V Heater

Features

110° deflection
Electrostatic focus
Straight gun
External 'dag
Grey bulb and panel
Max. Neck diameter
29·4 mm
Max. overall length
395 mm

Typical Operation and Base Connections

As CME2306.

23SP4

An early American Twin Panel Tube. Approved replacement in Ferguson, HMV and Philco receivers was Mazda CME2307.

FIT CME2306

Plug in replacement

Notes:

1. CME2306 neck is 21 mm shorter, but cone dimensions are same. Max. overall length 374 mm.
2. Panel mounting lugs are identical.
3. Electrical ratings are identical.
4. See page 92 for CME2306 data.
5. CME2306 may also be used as a plug in replacement for 23SP4 in Ferguson, H.M.V. and Philco receivers.

SUBSTITUTION FOR EM85

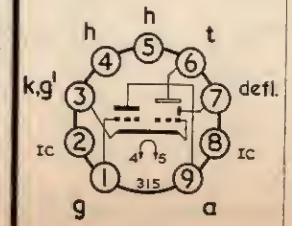
EM85 DATA

Tuning Indicator
Fan Display
6·3V, 0·3A Heater

Typical Operation

$V_{a(b)}$	200		V
V_t	200		V
R_a	470		kΩ
V_g	0	−14	V
I_a	0·4	0·1	mA
I_t	1·4		mA
θ	100	0	°

B9A



FIT EM87

Plug in replacement

Notes:

1. EM87 produces a 'Column' display, whereas EM85 used a 'Fan' display.
2. No circuit modifications are needed.
3. Rotate valve holder to bring display to the front.
4. Mask down viewing aperture to column width.
5. See page 51 for EM87 data.

SUBSTITUTION FOR UU6

UU6 DATA

F.W. Rectifier
4V, 1·4A Heater

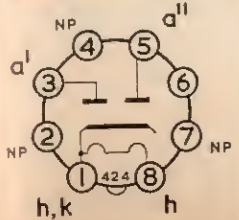
Typical Operation

I_a	120	mA
$V_{in(r.m.s.)}$	350	V
V_{out}	375	V
C_{res}	16	μF
R_{lim}	50	Ω

Bulb

Max. diameter
32 mm
Max. seated height
84 mm

Mazda Octal



FIT UU8

Plug in replacement

Notes:

1. UU8 bulb is larger
Max. diameter
54 mm
Max. seated height
101 mm
2. UU8 heater current is double
I_h 2·8 A
Check transformer for overheating and V_h drop.
3. See page 103 for UU8 data.
4. UU6 and UU8 valves manufactured before 1951 had a metallised bulb. The metallising was connected to Pin 6.

SUBSTITUTION FOR UU7

UU7 DATA

F.W. Rectifier
4V, 2·3A Heater

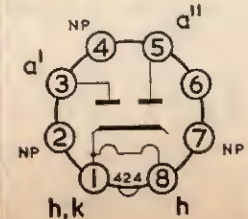
Ratings

$V_{a(max)}$	350	V
$I_{a(max)}$	180	mA

Bulb

Max. diameter
45 mm
Max. seated height
100 mm

Mazda Octal



FIT UU8

Plug in replacement

Notes:

1. UU8 bulb is wider
Max. diameter
54 mm
2. UU8 heater current is 0·5A higher.
I_h 2·8 A
Check transformer for overheating and V_h drop.
3. See page 103 for UU8 data.
4. UU7 and UU8 valves manufactured before 1951 had a metallised bulb. The metallising was connected to Pin 6.

SUBSTITUTION FOR UU9 and EZ40

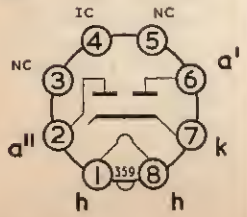
UU9 DATA

F.W. Rectifier
6·3V, 0·58A Heater

Typical Operation

I_a	90	mA
$V_{in(r.m.s.)}$	350	V
V_{out}	340	V
C_{res}	50	μF
R_{lim}	300	Ω

B8A

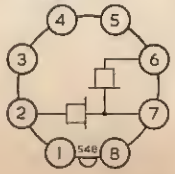


FIT 2 × BY105

Change to Silicon Rectifiers

Notes:

1. The two Mazda BY105 Silicon Rectifiers may be soldered to the old valve socket as shown below.
2. Since the BY105 forward resistance is lower than UU9, it will be necessary to increase the value of the smoothing resistor to keep HT output at its original voltage.



SUBSTITUTION FOR 6L19

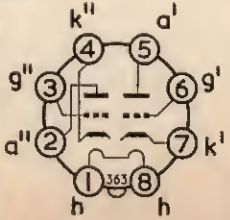
6L19 DATA

AF Double Triode
6·3V, 0·4A Heater

Typical Operation each section

$V_{a(b)}$	260	V
V_{g1}	−2	V
I_a	1·1	mA
R_a	100	kΩ
R_k	1·8	kΩ
g_m	3·4	mA/V
μ	55	

B8A



FIT ECC81

Change socket

Notes:

1. Change valve socket to B9A.
2. Usually no circuit modifications needed.
3. Should audio instability occur, due to the higher slope of ECC81 reduce the value of the first section anode load resistance. It may be necessary to halve the original value of the load.

This equivalents list is published by Thorn-AEI Radio Valves & Tubes, Ltd., for convenience of customers and, although every care has been taken in its preparation, no responsibility or liability is assumed or accepted for the accuracy of the information.

The list includes all entertainment valve and CRT types for which there is a Thorn-AEI equivalent. **Current, Obsolescent** and **Obsolete** types are included, and therefore reference to the other sections of this book is necessary if it is desired to establish the availability classification of any particular type. Picture Tubes are grouped together at the end of the list.

Before making a replacement, it is advisable to study the published data on the valve type concerned to ensure continued operation within the published rating. This equivalents list is not intended to guarantee any degree of equivalence as regards secondary parameters.

MAZDA

VALVE and CRT EQUIVALENTS LIST

Index	MAZDA		Brimar	European	American	Others
0A2 ...	—	—	0A2	150C2	0A2	STV150–30
0A3 ...	—	—	VR75/30	—	0A3	KD21
0B2 ...	—	—	0B2	108C1	0B2	STV108–30
0C3 ...	—	—	VR105/30	—	0C3	KD24
0D3 ...	—	—	VR150/30	150C3	0D3	GD150A/S
0Z4 ...	—	—	0Z4	—	0Z4	—
See also letter O						
1A3 ...	1D13	—	—	DA90	1A3	—
1A5G ...	—	—	1A5G	—	1A5G	—
1A7G ...	—	—	1A7G	DK32	1A7G	X14
1AB6 ...	1C3	DK96	DK96	DK96	1AB6	X25
1AC6 ...	1C2	DK92	DK92, 1AC6	DK92	1AC6	X20
1AH5 ...	1FD1	DAF96	DAF96	DAF96	1AH5	ZD25
1AJ4 ...	1F1	DF96	DF96	DF96	1AJ4	W25
1C1 ...	1C1	DK91	DK91, 1R5	DK91	1R5	X17
1C2 ...	1C2	DK92	DK92, 1AC6	DK92	1AC6	X20
1C3 ...	1C3	DK96	DK96	DK96	1AB6	X25
1C5GT ...	—	—	1C5GT	DL35	1C5GT	N14
1D5 ...	U4020	—	1D5	—	C10B	40SUA, RZ, UR1C
1D6 ...	—	—	1D6	—	—	—
1D13 ...	1D13	—	—	DA90	1A3	—
1F1 ...	1F1	DF96	DF96	DF96	1AJ4	W25
1F2 ...	1F2	DF92	1L4	DF92	1L4	—
1F3 ...	1F3	DF91	1T4, DF91	DF91	1T4	W17
1FD1 ...	1FD1	DAF96	DAF96	DAF96	1AH5	ZD25
1FD9 ...	1FD9	DAF91	1S5, DAF91	DAF91	1S5	ZD17
1H5GT ...	—	—	1H5GT	DAC32	1H5GT	HD14
1L4 ...	1F2	DF92	1L4	DF92	1L4	—
1LA6E ...	—	—	1LA6E	—	1LA6E	—
1LD5 ...	—	—	1LD5	—	1LD5	—
1LN5 ...	—	—	1LN5	—	1LN5	—
1M1 ...	1M1	DM71	—	DM71	1N3	Y25
1M3 ...	1M1	—	DM70	DM70	1M3	—
1N3 ...	1M1	DM71	—	DM71	1N3	Y25
1N5GT ...	—	—	1N5GT	DF33	1N5GT	Z14

Index	MAZDA		Brimar	European	American	Others
1P1 ...	1P1	DL96	DL96	DL96	3C4	N25
1P10 ...	1P10	DL92	DL92, 3S4	DL92	3S4	N17
1P11 ...	1P11	DL94	DL94, 3V4	DL94	3V4	N19
1R5 ...	1C1	DK91	DK91, 1R5	DK91	1R5	X17
1S2 ...	—	DY86	DY86	DY86	1S2	—
1S2A ...	—	DY87	DY87	DY87	1S2A	—
1S4 ...	—	—	1S4, DL91	DL91	1S4	—
1S5 ...	1FD9	DAF91	1S5, DAF91	DAF91	1S5	ZD17
1T2 ...	—	—	R16	—	1T2	U37
1T4 ...	1F3	DF91	DF91, 1T4	DF91	1T4	W17
1U5 ...	—	—	1U5	—	1U5	—
1X2B ...	—	—	R19	—	1X2B	—
2A3 ...	—	—	2A3	—	—	—
2B35 ...	6D1	—	—	EA50	2B35	SD61
2D21 ...	—	—	2D21	EN91	2D21	20A3
2T/270K ...	—	—	R10	—	6305	HR1, HR2
2J2 ...	U26	—	R20	KY80	2J2	U49
2L2 ...	U25	—	—	KY50	2L2	U47
3A5 ...	—	—	DCC90, 3A5	DCC90	3A5	—
3C4 ...	1P1	DL96	DL96	DL96	3C4	N25
3D6 ...	—	—	3D6	—	—	—
3Q4 ...	—	—	3Q4	DL95	3Q4	N18
3Q5GT ...	—	—	3Q5GT	DL33	3Q5GT	N16
3S4 ...	1P10	DL92	3S4, DL92	DL92	3S4	N17
3V4 ...	1P11	DL94	3V4, DL94	DL94	3V4	N19
4CM4 ...	—	PC86	PC86	PC86	4CM4	—
4D1 ...	HL1320	—	4D1	—	—	C30B, DA, HL13C
4DL4 ...	—	PC88	PC88	PC88	4DL4	—
4FY5 ...	—	PC97	PC97	PC97	4FY5	—
4XP ...	PP3–250	—	—	—	—	AC044, LP4, PX4, P12–250, S30C
5A/160H ...	6F12	EF91	SD3, 6AM6, EF91	EF91	6AM6	PM07, HP6, SP6, Z77, 5A/160K
5A/160K ...	6F12	EF91	SD3, 6AM6, EF91	EF91	6AM6	PM07, HP6, SP6, Z77, 5A/160H
5AQ4 ...	—	—	—	GZ32	5AQ4	—
5B250A ...	—	—	S07	QV05–25	S07	—
5R4GY ...	—	—	5R4GY	—	5R4GY	—

Index	MAZDA		Brimar	European	American	Others
5U4G	—	—	5U4G	GZ31	5U4G	U52
5V4G	—	—	5V4G	—	—	52KU
5Y3GT	—	—	5Y3GT	—	5Y3GT	U50
5Z3	—	—	5Z3	—	5Z3	—
5Z4G	—	—	5Z4G	GZ30	5Z4G	R52
6/30L2	6/30L2	ECC804	ECC804	ECC804	6GA8	B729
6A3	—	—	6A3	—	6A3	—
6A7/E	—	—	6A7/E	—	6A7/E	—
6A8G	—	—	6A8G	—	6A8G	X63
6AB8	—	ECL80	ECL80	ECL80	6AB8	63TP, LN152
6AF4A	—	—	6AF4A	—	6AF4A	—
6AG6G	—	—	6AG6G, EL33	EL33	6AG6G	N147, KT61
6AJ8	6C12	ECH81	ECH81	ECH81	6AJ8	X719
6AK5	—	—	6AK5, EF95	EF95	6AK5	DP61, PM05
6AK6	—	—	6AK6	—	6AK6	—
6AK8	6LD12	EABC80	EABC80	EABC80	6AK8	DH719, 6T8
6AL5	6D2	EB91	6AL5, EB91	EB91	6AL5	D77, D152, DD6
6AM4	—	—	6AM4	—	6AM4	—
6AM5	—	—	6AM5	EL91	6AM5	N77, N144, 7D9, 6P17, 16A
6AM6	6F12	EF91	8D3, 6AM6, EF91	EF91	6AM6	5A/160H, 5A/160K, Z77, PM07, HP6, SP6
6AQ4	6L34	EC91	—	EC91	6AQ4	—
6AQ5	—	—	6AQ5, EL90	EL90	6AQ5	BPM04, N727
6AQ8	6L12	ECC85	ECC85	ECC85	6AQ8	B719
6AT6	—	EBC90	6AT6	EBC90	6AT6	DH77
6AU6	—	—	6AU6	EF94	6AU6	—
6AV6	—	—	6AV6	EBC91	6AV6	—
6B4G	—	—	6B4G	—	6B4G	—
6B7/E	—	—	6B7/E	—	6B7/E	—
6B8GT	—	—	6B8GT	—	6B8GT	—
6BA6	—	—	6BA6	EF93	6BA6	PM04, W727
6BD7A	6LD13	EBC81	EBC81	EBC81	6BD7A	—
6BE6	—	—	6BE6, EK90	EK90	6BE6	HM04, X77, X727
6BG6G	—	—	6BG6G	—	6BG6G	—
6BH6	—	—	6BH6	—	6BH6	—
6BJ6	—	—	6BJ6	—	6BJ6	—

Index	MAZDA		Brimar	European	American	Others
6BK4	—	—	6BK4	—	6BK4	—
6BK8	—	EF86	EF86	EF86	6267	—
6BL8	—	—	6BL8	—	6BL8	—
6BM8	6PL12	ECL82	ECL82	ECL82	6BM8	—
6BQ5	6P15	EL84	EL84	EL84	6BQ5	N709
6BQ7A	—	—	6BQ7A	—	6BQ7A	—
6BR5	—	EM80	—	EM80	6BR5	65ME
6BR7	—	—	6BR7	—	6BR7	8D5
6BR8	—	—	6BR8	—	6BR8	—
6BS7	—	—	6BS7	—	6BS7	8D7
6BT4	UU9	EZ40	EZ40	EZ40	6BT4	66KU, U150, U718
6BW6	—	—	6BW6	—	6BW6	—
6BW7	—	—	6BW7	—	6BW7	8D6
6BX6	—	EF80	EF80	EF80	6BX6	Z152, Z719
6BY7	6F26	EF85	EF85	EF85	6BY7	W719
6C4	—	—	6C4, EC90	EC90	6C4	L77
6C5G	—	—	6C5G	—	6C5G	—
6C6	—	—	6C6	—	6C6	—
6C9	6C9	—	—	—	—	—
6C10	6C10	ECH42	ECH42	ECH42	6CU7	X150, 62TH
6C12	6C12	ECH81	ECH81	ECH81	6AJ8	X719
6C15	6C15	—	—	ECF800	—	—
6C16	6C16	ECF80	ECF80	ECF80	6BL8	—
6C18	6C18	—	—	ECF805	6GV7	—
6C31	6C31	—	—	—	—	—
6CA4	UU12	—	EZ81	EZ81	6CA4	U709
6CA7	—	—	EL34	EL34	6CA7	—
6CD6G	—	—	6CD6G	—	6CD6G	—
6CF8	6F22	EF86	EF86	EF86	6CF8	6267, Z729
6CH6	—	—	6CH6, EL821	EL821	6CH6	7D10
6CJ5	6F16	EF41	EF41	EF41	6CJ5	62VP, W150
6CK5	—	—	EL41	EL41	6CK5	N150, 67PT
6CL6	—	—	6CL6	—	—	—
6CQ6	—	—	9D6, EF92	EF92	6CQ6	W77, VP6, E2016, 6F21
6CM4	—	—	EC86	EC86	6CM4	—

Index	MAZDA	Brimar	European	American	Others
6CS6	—	EH90	EH90	6CS6	—
6CU7	6C10	ECH42	ECH42	6CU7	X150, 62TH
6CV7	6LD3	EBC41	EBC41	6CV7	DH150, 62DDT, DH718
6CW7	6L16	ECC84	ECC84	6CW7	—
6D1	6D1	—	—	EA50	— 2B35, SD61
6D2	6D2	EB91	EB91	EB91	6AL5 D77, D152, DD6
6D6	—	—	6D6	—	6D6 —
6DA5	—	EM81	EM81	EM81	6DA5 —
6DA6	—	EF89	EF89	EF89	6DA6 —
6DC8	6FD12	EBF89	EBF89	EBF89	6DC8 —
6DJ8	—	—	ECC88	ECC88	6DJ8 —
6DL4	—	—	EC88	EC88	6DL4 —
6DL5	—	EL95	—	EL95	6DL5 —
6E5GT	—	—	6E5GT	—	6E5GT —
6EC7	6F18	—	—	—	6EC7 W739
6EH7	6F29	EF183	EF183	EF183	6EH7 —
6EJ7	6F30	EF184	EF184	EF184	6EJ7 —
6EL7	6F23	—	—	EF812	6EL7 Z749
6ES8	—	—	ECC189	ECC189	6ES8 —
6F1	6F1	—	—	—	— —
6F6G	—	—	6F6G	—	6F6G KT63
6F11	6F11	—	—	—	— —
6F12	6F12	EF91	8D3, 6AM6, EF91	EF91	6AM6 5A/160H, 5A/160K, PM07, SP6, Z77, HP6
6F13	6F13	—	—	—	— —
6F14	6F14	—	—	—	— —
6F15	6F15	—	—	—	— —
6F16	6F16	EF41	EF41	EF41	6CJ5 62VP, W150
6F18	6F18	—	—	—	6EC7 W739
6F19	6F19	—	—	—	— —
6F21	—	—	9D6, EF92	EF92	6CQ6 W77, VP6, E2016, 6F21
6F22	6F22	EF86	EF86	EF86	6267 Z729
6F23	6F23	—	—	EF812	6EL7 Z749
6F24	6F24	—	—	EF814	— —
6F25	6F25	—	—	EF811	— —
6F26	6F26	EF85	EF85	EF85	6BY7 W719

Index	MAZDA	Brimar	European	American	Others
6F28	6F28	—	—	EE80	— —
6F29	6F29	EF183	EF183	EF183	6EH7 —
6F30	6F30	EF184	EF184	EF184	6EJ7 —
6FD12	6FD12	EBF89	EBF89	EBF89	6DC8 —
6FG6	—	EM84	EM84	EM84	6FG6 —
6FY5	—	—	EC97	EC97	6FY5 —
6G5G	6M1	—	6U5G	—	6U5G 6G5G, 6H5, 63ME, VFT6
6GA8	6/30L2	ECC804	ECC804	ECC804	6GA8 B729
6GV7	6C18	—	—	ECF805	6GV7 —
6GV8	—	—	—	ECL85	6GV8 —
6GW8	—	ECL86	ECL86	ECL86	6GW8 —
6H5	6M1	—	6U5G	—	6U5G 6G5G, 63ME, VFT6, Y61, Y63
6H6GT	—	—	6H6GT	EB34	6H6GT D63
6HU6	—	EM87	EM87	EM87	6HU6 —
6HU8	—	ELL80	ELL80	ELL80	6HU8 —
6J5G	—	—	6J5G	—	6J5G L63
6J5GT	—	—	6J5GT	—	6J5GT —
6J6	—	—	6J6	ECC91	6J6 —
6J7G	—	—	6J7G	—	6J7G KTZ63, Z63
6J7GT	—	—	6J7GT	—	6J7GT —
6JX8	—	ECH84	ECH84	ECH84	6JX8 —
6K6G	—	—	6K6G	—	6K6G —
6K7G	—	—	6K7G	—	6K7G KTW63, W63
6K7GT	—	—	6K7GT	—	6K7GT —
6K8G	—	ECH35	6K8G	ECH35	6K8G OM10, Z61M, X65, X147
6K8GT	—	—	6K8GT	—	6K8GT —
6K25	6K25	—	—	—	— —
6L1	6L1	—	—	—	— —
6L6G	—	—	6L6G	—	6L6G KT66
6L6GA	—	—	6L6GA	—	— —
6L7G	—	—	6L7G	—	6L7G —
6L12	6L12	ECC85	ECC85	ECC85	6AQ8 B719
6L13	6L13	ECC83	12AX7	ECC83	12AX7 B339, 12DT7, E2164
6L15	6L15	—	—	ECC805	— —
6L16	6L16	ECC84	ECC84	ECC84	6CW7 —

Index	MAZDA	Brimar	European	American	Others
6L18	6L18	—	—	—	—
6L19	6L19	—	—	—	—
6L34	6L34	EC91	EC91	6AQ4	—
6LD3	6LD3	EBC41	EBC41	6CV7	DH150, 62DDT, DH718
6LD12	6LD12	EABC80	EABC80	6AK8	DH719, 6T8
6LD13	6LD13	EBC81	EBC81	6BD7A	—
6LD20	6LD20	—	—	—	—
6M1	6M1	—	6U5G	6U5G	6G5G, 63ME, VFT6, Y61, Y63
6M2	6M2	—	—	EM35	—
6N7G	—	—	6N7G	—	6N7G	—
6N8	—	EBF80	EBF80	EBF80	6N8	WD709, ZD152
6P1	6P1	—	—	—	—	—
6P15	6P15	EL84	EL84	EL84	6BQ5	N709
6P17	—	—	6AM5	EL91	6AM5	N77, N144, 7D9, 16A, 6P17
6P25	6P25	—	—	—	—	—
6P26	6P26	—	—	—	—	—
6P28	6P28	—	—	—	—	—
6PL12	6PL12	ECL82	ECL82	ECL82	6BM8	—
6Q7G	—	—	6Q7G	—	6Q7G	DH63
6Q7GT	—	—	6Q7GT	—	6Q7GT	—
6R7G	—	—	6R7G	—	6R7G	DL63
6S2	—	EY86	EY86	EY86	6S2	—
6S2A	—	EY87	EY87	EY87	6S2A	—
6SC7	—	—	6SC7	—	6SC7	—
6SC7GT	—	—	6SC7GT	—	6SC7GT	—
6SG7	—	—	6SG7	—	6SG7	—
6SJ7	—	—	6SJ7	—	6SJ7	—
6SK7	—	—	6SK7	—	6SK7	—
6SL7GT	—	—	6SL7GT	—	6SL7GT	—
6SN7GT	—	—	6SN7GT	ECC32	6SN7GT	B65, 13D2
6SQ7	—	—	6SQ7	—	6SQ7	—
6T8	6LD12	EABC80	EABC80	EABC80	6AK8	DH719
6U4GT	—	—	6U4GT	—	6U4GT	—
6U5/6G5	—	—	6U5/6G5	—	6U5/6G5	—
6U5G	6M1	—	6U5G	—	6U5G	6G5G, 6H5, 63ME, VFT6, Y61, Y63
6U7G	—	—	6U7G	—	6U7G	—

Index	MAZDA	Brimar	European	American	Others
6U8	—	—	ECF82	ECF82	6U8	—
6V4	—	EZ80	EZ80	EZ80	6V4	—
6V6G	—	—	6V6G	—	6V6G	—
6V6GT	—	—	6V6GT	—	6V6GT	—
6X2	—	EY51	R12, EY51	EY51	6X2	U43, U151, SU61
6X4	—	—	6X4	EZ90	6X4	U78
6X5GT	—	—	6X5GT, EZ35	EZ35	6X5GT	U70, U147
7A2	AC/Pen	—	7A2	—	—	MKT4, MP/PEN, A70B, APP4A, KT42, N40, P4VA, PEN4VA
7A3	AC2/Pen	—	7A3	—	—	APP4B, PEN4VB, A70C, N41, PENA4, PT4, 42MP/PEN, KT41
7A7	—	—	7A7	—	7A7	—
7AN7	30L1	PCC84	PCC84	PCC84	7AN7	B319
7B6	—	—	7B6	—	—	DH81, DL82
7B7	—	—	7B7	—	7B7	W149
7C5	—	—	7C5	—	7C5	N148
7C6	—	—	7C6	—	7C6	DH149
7D3	—	—	7D3	—	7D3	40PPA
7D5	—	—	7D5	—	—	N30, PP13A, PTA
7D6	Pen383	—	7D6	—	—	PP35, C70D, PEN36C, PEN3520
7D8	Pen1340	—	7D8	—	—	PEN13C
7D9	—	—	6AM5	EL91	6AM5	N77, N144, 16A, 6P17
7D10	—	—	6CH6, EL821	EL821	6CH6	—
7D11	—	—	7D11	—	—	KT88
7DJ8	—	—	PCC88	PCC88	7DJ8	—
7ED7	30F5	—	—	PF818	7ED7	Z329
7EK7	30L15	—	—	PCC805	7EK7	B349
7ES8	—	PCC189	PCC189	PCC189	7ES8	—
7FC7	—	PCC89	PCC89	PCC89	7FC7	—
7GV7	30C18	PCF805	—	PCF805	7GV7	—
7H7	—	—	7H7	—	7H7	W81, W143, W148
7HG8	—	Superseded by 8HG8				
7K7	—	—	7K7	—	7K7	—
7R7	—	—	7R7	—	7R7	—
7S7	—	—	7S7	—	7S7	X81, X148
7Y4	—	—	7Y4	—	—	U82, U149
7Z4	—	—	7Z4	—	7Z4	—

Index	MAZDA		Brimar	European	American	Others
8A1	AC/SG	—	8A1	—	—	SPT4A, MSPEN, MSP4, AC/S2/PEN, HP4101C
8D2	—	—	8D2	—	—	13SPA, C50B, SP13C
8D3	6F12	EF91	8D3, 6AM6, EF91	EF91	6AM6	5A/160H, 5A/160K, HP6, SP6, Z77
8D5	—	—	6BR7	—	6BR7	—
8D6	—	—	6BW7	—	6BW7	—
8D7	—	—	6BS7	—	6BS7	—
8D8	—	—	8D8	—	8D8	—
8GJ7	—	PCF801	PCF801	PCF801	8GJ7	—
8HG8	—	PCF86	PCF86	PCF86	8HG8	—
9A8	30C1	PCF80	PCF80	PCF80	9A8	LZ319, LZ329
9AQ8	—	—	PCC85	PCC85	9AQ8	—
9BW6	—	—	9BW6	—	9BW6	—
9D2	VP1322	—	9D2	—	—	13VPA, C50N, VP13C
9D6	—	—	9D6, EF92	EF92	6CQ6	VP6, W77, E2016, 6F21
9D7	—	—	9D7	—	9D7	—
9EN7	30C15	—	—	PCF800	9EN7	LZ339
9GB8	30FL1	—	—	PCE800	9GB8	LN339
9JW8	—	PCF802	PCF802	PCF802	9JWS	—
9U8	—	PCF82	PCF82	PCF82	9U8	—
10C1	10C1	—	—	—	—	X118, X145
10C2	10C2	—	—	—	—	—
10C14	10C14	UCH81	UCH81	UCH81	19D8	X119
10D1	—	—	10D1	—	—	—
10D2	10D2	—	—	—	—	—
10F1	10F1	—	—	—	—	Z145
10F3	10F3	—	—	—	—	—
10F9	10F9	—	—	—	—	W118, W145
10F18	10F18	—	—	—	13EC7	W119
10FD12	10FD12	UBF89	UBF89	UBF89	19FL8	WD119
10L1	10L1	—	—	—	—	—
10L14	10L14	UCC85	UCC85	UCC85	—	B109
10LD3	10LD3	UBC41	UBC41	UBC41	14L7	DH142, 141DDT, DH118
10LD11	10LD11	—	—	—	—	DL145
10LD12	10LD12	UABC80	UABC80	UABC80	—	DH109
10LD13	10LD13	UBC81	UBC81	UBC81	—	DH119

Index	MAZDA		Brimar	European	American	Others
10M1	10M1	—	—	—	—	—
10M2	10M2	UM35	—	UM35	—	—
10P13	10P13	—	—	—	—	N145, N118
10P14	10P14	—	—	—	—	—
10P18	10P18	UL84	UL84	UL84	45B5	N119
10PL12	10PL12	UCL82	UCL82	UCL82	50BM8	LN119
11A2	AC/HL/DD	—	—	—	—	—
11D3	HL/DD/1320	—	11D3	—	—	13DHA, HAD, TDD13C
11D5	—	—	11D5	—	—	—
12A6	—	—	12A6	—	12A6	—
12AC5	—	—	UF41	UF41	12AC5	121VP, W142
12AC6	—	—	12AC6	—	12AC6	—
12AD6	—	—	12AD6	—	12AD6	—
12AE6	—	—	12AE6	—	12AE6	—
12AH8	—	—	12AH8	—	12AH8	20D3
12AT6	—	—	12AT6	HBC90	12AT6	—
12AT7	—	ECC81	12AT7, ECC81	ECC81	12AT7	B152, B309, E2157
12AU6	—	—	12AU6	HF94	12AU6	—
12AU7	—	ECC82	12AU7, ECC82	ECC82	12AU7	B329, E2163
12AV6	—	—	12AV6	HBC91	12AV6	—
12AX7	6L13	ECC83	12AX7, ECC83	ECC83	12AX7	B339, 12DT7 E2164
12BA6	—	—	12BA6	HF93	12BA6	—
12BE6	—	—	12BE6	HK90	12BE6	—
12BH7	—	—	12BH7	—	12BH7	—
12BL6	—	—	12BL6	—	12BL6	—
12C8GT	—	—	12C8GT	—	12C8GT	—
12DT7	6L13	ECC83	12AX7, ECC83	ECC83	12AX7	B339, E2164
12FB5	30P12	—	—	PL801	12FB5	N369
12J5GT	—	—	12J5GT	—	12J5GT	—
12J7GT	—	—	12J7GT	—	12J7GT	—
12K5	—	—	12K5	—	12K5	—
12K7GT	—	—	12K7GT	—	12K7GT	KTW74M, W76
12K8GT	—	—	12K8GT	—	12K8GT	X71M, X76M
12Q7GT	—	—	12Q7GT	—	12Q7GT	DL74M, DH76
12SJ7	—	—	12SJ7	—	12SJ7	—

Index	MAZDA		Brimar	European	American	Others
12SK7 ...	—	—	12SK7	—	12SK7	—
12SL7GT ...	—	—	12SL7GT	—	12SL7GT	—
12SN7GT ...	—	—	12SN7GT	—	12SN7GT	B36
12SQ7 ...	—	—	12SQ7	—	12SQ7	—
12SR7 ...	—	—	12SR7	—	12SR7	—
12U5G ...	—	—	12U5G	—	12U5G	—
13D1 ...	—	—	13D1	—	—	—
13D2 ...	—	—	6SN7GT	ECC32	6SN7GT	B65
13D3 ...	—	—	13D3	—	—	—
13D8 ...	—	—	13D8	—	—	—
13D9 ...	—	—	13D9	—	—	—
13DHA ...	HL/DD/1320	—	11D3	—	—	HAD, TDD13C
13EC7 ...	10F18	—	—	—	13EC7	W119
13GC8 ...	30PL1	—	—	PCL801	13GC8	LN319
13SPA ...	—	—	8D2	—	—	C50B, SP13C
13VPA ...	VP1322	—	9D2	—	—	C50N, VP13C
14B6 ...	—	—	14B6	—	14B6	—
14GW8 ...	—	PCL86	PCL86	PCL86	14GW8	—
14H7 ...	—	—	14H7	—	14H7	—
14R7 ...	—	—	14R7	—	14R7	—
14K7 ...	—	UCH42	UCH42	UCH42	14K7	X142, 141TH
14L7 ...	10LD3	UBC41	UBC41	UBC41	14L7	DH142, 141DDT, DH118
14S7 ...	—	—	14S7	—	14S7	—
15A2 ...	—	—	15A2	—	15A2	41MPG, AS0A, FC4, MX40, VHT4, X42
15A6 ...	—	PL83	PL83	PL83	15A6	—
15CW5 ...	30P18	PL84	PL84	PL84	15CW5	N379
15D1 ...	—	—	15D1	—	—	—
15D2 ...	—	—	15D2	—	—	—
15DQ8 ...	—	PCL84	PCL84	PCL84	15DQ8	—
16A ...	—	—	6AM5	EL91	6AM5	7D9, N77, N144, 6P17
16A5 ...	30P16	PL82	PL82	PL82	16A5	N154, N329
16A8 ...	30PL12	PCL82	PCL82	PCL82	16A8	—
16GK8 ...	30PL13	—	—	PCL800	16GK8	—
17Z3 ...	—	PY81	PY81	PY81	17Z3	U153
18 ...	—	—	18	—	18	—

Index	MAZDA		Brimar	European	American	Others
18D2 ...	—	—	18D2	—	—	—
18D3 ...	—	—	ECF804	ECF804	—	—
18GV8 ...	—	PCL85	PCL85	PCL85	18GV8	—
19AQ5 ...	—	—	19AQ5	—	19AQ5	—
19BG6G ...	—	—	19BG6G	—	19BG6G	—
19BR5 ...	—	—	UM80	UM80	19BR5	—
19CS4 ...	U191	—	—	PY301	19CS4	U339
19D8 ...	10C14	UCH81	UCH81	UCH81	19D8	X119
19FL8 ...	10FD12	UBF89	UBF89	UBF89	19FL8	WD119
19SU ...	U192	PY82	PY82	PY82	19Y3	U154, U319
19T8 ...	—	—	19T8	—	—	—
19Y3 ...	U192	PY82	PY82	PY82	19Y3	19SU, U154, U319
20A3 ...	—	—	2D21	EN91	2D21	—
20D1 ...	20D1	—	—	—	—	—
20D2 ...	—	—	20D2	—	—	—
20D3 ...	—	—	12AH8	—	12AH8	—
20D4 ...	—	—	20D4	—	—	—
20F2 ...	20F2	—	—	—	—	—
20L1 ...	20L1	—	—	—	—	—
20P1 ...	20P1	—	—	—	—	—
20P3 ...	20P3	—	—	—	—	—
20P4 ...	20P4	—	—	CL30	—	—
20P5 ...	20P5	—	—	—	—	—
21A6 ...	—	PL81	PL81	PL81	21A6	N152, N359
25A6G ...	—	—	25A6G	—	—	—
25E5 ...	—	PL36	PL36	PL36	25E5	—
25GF6 ...	30P4	—	—	—	25GF6	N308
25L6GT ...	—	—	25L6GT	—	25L6GT	KT32
25SN7GT ...	—	—	25SN7GT	—	—	—
25U4GT ...	—	—	25U4GT	—	25U4GT	—
25Z4 ...	—	—	25Z4	—	25Z4	U31
27GB5 ...	—	PL500	PL500	PL500	27GB5	—
30AE3 ...	—	PY88	PY88	PY88	30AE3	—
30C1 ...	30C1	PCF80	PCF80	PCF80	9A8	LZ319, LZ329
30C15 ...	30C15	—	—	PCF800	9EN7	LZ339

Index	MAZDA		Brimar	European	American	Others
30C17 ...	30C17	PCF87	—	PCF87	—	—
30C18 ...	30C18	PCF805	PCF805	PCF805	7GV7	—
30F5 ...	30F5	—	—	PF81S	7ED7	Z329
30F27 ...	30F27	—	—	PE81	—	—
30FL1 ...	30FL1	—	—	PCE800	9GB8	LN339
30FL12 ...	30FL12	—	PCE82	PCE82	—	—
30FL14 ...	30FL14	PCF808	—	PCF808	—	—
30L1 ...	30L1	PCC84	PCC84	PCC84	7AN7	B319
30L15 ...	30L15	—	—	PCC805	7EK7	B349
30L17 ...	30L17	PCC806	—	PCC806	—	—
30P4MR ...	30P4MR	—	—	—	—	—
30P12 ...	30P12	—	—	PL801	12FB5	N369
30P16 ...	30P16	PL82	PL82	PL82	16A5	N154, N329
30P18 ...	30P18	PL84	PL84	PL84	15CW5	N379
30P19 ...	30P19	PL802	PL802	PL302	—	N389
30PL1 ...	30PL1	—	—	PCL801	13GC8	LN319
30PL12 ...	30PL12	PCL82	PCL82	PCL82	16A8	—
30PL13 ...	30PL13	—	—	PCL800	16GK8	—
30PL14 ...	30PL14	—	—	PCL88	—	LN329
30PL15 ...	30PL15	—	—	—	—	—
31A3 ...	—	UY41	UY41	UY41	31A3	U142, 311SU
35A5 ...	—	—	35A5	—	35A5	—
35L6GT ...	—	—	35L6GT	—	35L6GT	—
35W4 ...	—	—	35W4, HY90	HY90	35W4	—
35Z3 ...	—	—	35Z3	—	35Z3	—
35Z4GT ...	—	—	35Z4GT	—	35Z4GT	U74, U76
38A3 ...	U381	UY85	UY85	UY85	38A3	U119
40PPA ...	—	—	7D3	—	7D3	—
40SUA ...	U4020	—	1D5	—	—	C10B, RZ, UR1C
41MH ...	AC2/HL	—	—	—	—	41MRC
41MPG ...	—	—	15A2	—	15A2	A80A, FC4, MX40, VHT4, X42
41MRC ...	AC2/HL	—	—	—	—	41MH
41STH ...	AC/TH1	—	—	—	—	—
42E ...	—	—	42E	—	—	—
42MP/PEN ...	AC2/Pen	—	7A3	—	7A3	APP4B, N41, KT41, PENA4 PEN4VB, PT4, A70C

Index	MAZDA		Brimar	European	American	Others
43E ...	—	—	43E	—	—	—
43IU ...	UU5	—	R2	—	—	MU14
44IU ...	UU5	—	R3	—	—	MU14
45A5 ...	—	UL41	UL41	UL41	45A5	N142, 451PT
45B5 ...	10P18	UL84	UL84	UL84	45B5	N119
50A5 ...	—	—	50A5	—	50A5	—
50BM8 ...	10PL12	UCL82	UCL82	UCL82	50BM8	LN119
50C5 ...	—	—	50C5	HL92	50C5	—
50CD6G ...	—	—	50CD6G	—	50CD6G	—
50L6GT ...	—	—	50L6GT	—	50L6GT	KT71
52KU ...	—	—	5V4G	—	5V4G	52KU
62DDT ...	6LD3	EBC41	EBC41	EBC41	6CV7	DH150, DH718
62TH ...	6C10	ECH42	ECH42	ECH42	6CU7	X150
62VP ...	6F16	EF41	EF41	EF41	6CJ5	W150
63ME ...	6M1	—	6U5G	—	6U5G	6G5G, 6H5, VFT6, Y61, Y63
63TP ...	—	ECL80	ECL80	ECL80	6ABS	LN152
64ME ...	—	EM34	—	EM34	—	—
65ME ...	—	EM80	EM80	EM80	6BR5	—
66KU ...	UU9	EZ40	EZ40	EZ40	6BT4	U150, U718
67PT ...	—	—	EL41	EL41	6CK5	N150
75 ...	—	—	75	—	75	—
76 ...	—	—	76	—	—	—
77/E ...	—	—	77/E	—	—	—
78/E ...	—	—	78/E	—	78/E	—
80 ...	—	—	80	—	80	—
80S ...	—	—	80S	—	—	—
83 ...	—	—	83	—	—	—
83V ...	—	—	83V	—	—	—
108C1 ...	—	—	OB2	108C1	OB2	STV108–30
121VP ...	—	—	UF41	UF41	12AC5	W142
141DDT ...	10LD3	UBC41	UBC41	UBC41	14L7	DH142, DH118
141TH ...	—	UCH42	UCH42	UCH42	14K7	X142
150C2 ...	—	—	OA2	—	OA2	STV150–30
150C3 ...	—	—	VR150/30	150C3	OD3	GD150A/S
202STH ...	TH2321	—	—	—	—	302THA, C36B, C36C, C36A

Index	MAZDA		Brimar	European	American	Others
210VPT	VP210	—	—	—	—	VPT2
240QP	QP230	—	—	—	—	—
302THA	TH2321	—	—	—	—	202STH, C36B, C36C, C36A
311SU	—	UY41	UY41	UY41	31A3	U142
442BU	UU5	—	R2	—	—	DW4-350, U14
451PT	—	UL41	UL41	UL41	45A5	N142
460BU	UU5	—	R3	—	—	1561, DW4-500, U14
506BU	UU5	—	R1	—	—	1821, U10
807	—	—	807	QV05-25	807	5B250A
1561	UU5	—	R3	—	—	DW4-500, U14
1629	—	—	1629	—	—	—
1821	UU5	—	R1	—	—	U10
1867	UU5	—	R2	—	—	1W4-350, MU14, R42
5763	—	—	5763	—	5763	QV03-12
6080	—	—	6080	ECC230	6080	—
6146	—	—	6146	QV06-20	6146	—
6267	6F22	EF86	EF86, 6267	EF86	6267	Z729
6305	—	—	R10	—	6305	2T/270K, HR1, HR2
6374	—	—	—	—	6374	—
7558	—	—	7558	—	7558	—

Index	MAZDA		Brimar	European	American	Others
A11B	UU5	—	R2	—	—	1867, 1W4-350, R42
A11C	UU5	—	R3	—	—	1867, 1W4-500, MU14
A11D	UU5	—	R2	—	—	1867, 1W4-350, R42
A30B	AC2/HL	—	—	—	—	—
A50M	AC/VP1	—	—	—	—	—
A70B	AC/Pen	—	7A2	—	—	APP4A, KT42, N40, P4VA, PEN4VA, MKT4, MP/PEN
A70C	AC2/Pen	—	7A3	—	—	PEN4VB, N41, PENA4, KT41, APP4B, PT4, 42MP/PEN
A80A	—	—	15A2	—	15A2	41MPG, FC4, MX40, VHT4, X42
AC/HL	AC/HL	—	—	—	—	D4, MH4, HL4
AC/HL/DD	AC/HL/DD	—	—	—	—	MHD4, 11A2, DDT, DDT4, DH42, H4D
AC044	PP3-250	—	—	—	—	4XP, LP4, PX4, P12-250, S30C
AC/P	AC/P	—	—	—	—	—
AC/P4	AC/P4	—	—	—	—	—
AC/Pen	AC/Pen	—	7A2	—	—	KT42, N40, P4VA, PEN4VA, A70B, MKT4, MP/PEN, APP4A
AC/S2/PEN	AC/SG	—	8A1	—	—	SPT4A, MS/PEN, MSP4, HP4101C
AC/SG	AC/SG	—	8A1	—	—	AC/S2/PEN, HP4101C, SPT4A, MS/PEN, MSP4
AC/SG/VM	AC/SG/VM	—	—	—	—	MM4V, AS4125
AC/TH1	AC/TH1	—	—	—	—	41STH
AC/TP	AC/TP	—	—	—	—	TP4
AC/VP1	AC/VP1	—	—	—	—	VPT4B, VP4, VP4A, MVSPEN, A50M
AC/VP2	AC/VP2	—	—	—	—	W42, VP41, MVSPENB
AC2/HL	AC2/HL	—	—	—	—	41MH, A30B, HLA1, NH41
AC2/Pen	AC2/Pen	—	7A3	—	—	A70C, PEN4VB, N41, PENA4, KT41, APP4B, PT4, 42MP/PEN
AC2/Pen/DD	AC2/Pen/DD		—	—	—	PT4D, DDPP4B, DN41
AC4/Pen	AC4/Pen	—	—	—	—	—
AC5/Pen	AC5/Pen	—	—	—	—	PT10
AC5/Pen/DD	AC5/Pen/DD		—	—	—	—
APP4A	AC/Pen	—	7A2	—	—	N40, P4VA, PEN4VA, A70B, MKT4, MP/PEN, KT42
APP4B	AC2/Pen	—	7A3	—	—	PEN4VB, A70C, N41, PENA4, KT41, PT4, 42MP/PEN
APV4	UU5	—	R3	—	—	1867, 1W4-350, MU14, R42

Index	MAZDA		Brimar	European	American	Others
AS4125	AC/SG/VM	—	—	—	—	—
B36	—	—	12SN7GT	—	12SN7GT	—
B65	—	—	6SN7GT	ECC32	6SN7GT	13D2
B109	10L14	UCC85	UCC85	UCC85	—	—
B152	—	ECC81	12AT7, ECC81	ECC81	12AT7	B309, E2157
B309	—	ECC81	12AT7, ECC81	ECC81	12AT7	B152, E2157
B319	30L1	PCC84	PCC84	PCC84	7AN7	—
B329	—	ECC82	12AU7, ECC82	ECC82	12AU7	E2163
B339	6L13	ECC83	12AX7, ECC83	ECC83	12AX7	12DT7, E2164
B349	30L15	—	—	PCC805	7EK7	—
B719	6L12	ECC85	ECC85	ECC85	6AQ8	—
B729	6/30L2	ECC804	ECC804	ECC804	6GA8	—
BPM04	—	—	6AQ5	EL90	6AQ5	N727
BVA132	HL23DD	—	—	—	—	—
BVA142	VP23	—	—	—	—	—
BVA162	Pen25	—	—	—	—	—
BVA172	TP25	—	—	—	—	—
BVA211	UU5	—	—	—	—	—
BVA214	UU5	—	—	—	—	—
BVA215	UU5	—	—	—	—	—
BVA216	UU5	—	—	—	—	—
C10B	U4020	—	1D5	—	C10B	RZ, UR1C
C30B	HL1320	—	4D1	—	—	DA, HL13C
C36A	TH2321	—	—	—	—	202STH, 302THA, C36B, C36C
C36B	TH2321	—	—	—	—	202STH, 302THA, C36A, C36C
C36C	TH2321	—	—	—	—	202STH, 302THA, C36B, C36A
C50B	—	—	8D2	—	—	SP13C, 13SPA
C50N	VP1322	—	9D2	—	—	13VPA, VP13C
C70D	Pen383	—	7D6	—	—	PP35, PEN36C, PEN3520
CL30	20P4	—	—	CL30	—	—
CY30	U301	—	—	CY30	—	—
CY31	U201	—	—	CY31	—	—
D1	D1	—	—	—	—	T4D
D4	AC/HL	—	—	—	—	—
D15	—	—	D15	—	—	—

Index	MAZDA		Brimar	European	American	Others
D63	—	—	6H6GT	EB34	6H6GT	—
D77	6D2	EB91	EB91, 6AL5	EB91	6AL5	D152, DD6
D152	6D2	EB91	EB91, 6AL5	EB91	6AL5	D77, DD6
DA	HL1320	—	4D1	—	—	C30B, HL13C
DA90	1D13	—	—	DA90	1A3	—
DAC32	—	—	1H5GT	DAC32	1H5GT	HD14
DAF91	1FD9	DAF91	1S5, DAF91	DAF91	1S5	ZD17
DAF96	1FD1	DAF96	DAF96, 1AH5	DAF96	1AH5	ZD25
DCC90	—	—	DCC90, 3A5	DCC90	3A5	—
DD6	6D2	EB91	EB91, 6AL5	EB91	6AL5	D77, D152
DD41	DD41	—	—	—	—	—
DDPP4B	AC2/Pen/DD		—	—	—	—
DDT	AC/HL/DD	—	—	—	—	—
DDT4	AC/HL/DD	—	—	—	—	—
DF33	—	—	1N5GT	DF33	1N5GT	Z14
DF91	1F3	DF91	DF91, 1T4	DF91	1T4	W17
DF92	1F2	DF92	1L4	DF92	1L4	—
DF96	1F1	DF96	DF96	DF96	1AJ4	W25
DH42	AC/HL/DD	—	—	—	—	—
DH63	—	—	6Q7G	—	6Q7G	—
DH76	—	—	12Q7GT	—	12Q7GT	DL74M
DH77	—	EBC90	6AT6	EBC90	6AT6	—
DH81	—	—	7B6	—	7B6	DL82
DH109	10LD12	UABC80	UABC80	UABC80	—	—
DH118	10LD3	UBC41	UBC41	UBC41	14L7	141DDT, DH142
DH119	10LD13	UBC81	UBC81	UBC81	—	—
DH142	10LD3	UBC41	UBC41	UBC41	14L7	141DDT, DH118
DH147	—	—	6R7G	—	6R7G	OM4, DL63
DH149	—	—	7C6	—	7C6	—
DH150	6LD3	EBC41	EBC41	EBC41	6CV7	62DDT, DH718
DH718	6LD3	EBC41	EBC41	EBC41	6CV7	62DDT, DH150
DH719	6LD12	EABC80	EABC80	EABC80	6AK8	6T8
DK32	—	—	1A7G	DK32	1A7G	X14
DK91	1C1	DK91	DK91, 1R5	DK91	1R5	X17
DK92	1C2	DK92	DK92, 1AC6	DK92	1AC6	X20

Index		MAZDA		Brimar	European	American	Others
DK96	...	1C3	DK96	DK96	DK96	1AB6	X25
DL33	...	—	—	3Q5GT	DL33	3Q5GT	N16
DL35	...	—	—	1C5GT	DL35	1C5GT	N14
DL63	...	—	—	6R7G	—	6R7G	DH147, OM4
DL74M	...	—	—	12Q7GT	—	12Q7GT	DH76
DL82	...	—	—	7B6	—	7B6	DH81
DL91	...	—	—	1S4, DL91	DL91	1S4	—
DL92	...	1P10	DL92	DL92, 3S4	DL92	3S4	N17
DL94	...	1P11	DL94	DL94, 3V4	DL94	3V4	N19
DL95	...	—	—	3Q4	—	3Q4	N18
DL96	...	1P1	DL96	DL96	DL96	3C4	N25
DL145	...	10LD11	—	—	—	—	—
DM70	...	—	—	DM70	DM70	1M3	—
DM71	...	1M1	DM71	—	DM71	1N3	Y25
DN41	...	AC2/Pen/DD		—	—	—	—
DO24	...	PP5–400	—	—	—	—	P27–500
DP61	...	—	—	6AK5, EF95	EF95	6AK5	PM05
DW2	...	UU5	—	R1	—	—	506BU, 1821
DW3	...	UU5	—	R2	—	—	DW4–350
DW4–350	...	UU5	—	R2	—	—	—
DY86	...	—	DY86	DY86	DY86	1S2	—
DY87	...	—	DY87	DY87	DY87	1S2A	—
E2016	...	—	—	9D6	EF92	6CQ6	W77, VP6
E2157	...	—	EC81	12AT7, ECC81	ECC81	12AT7	B152, B309
E2163	...	—	EC82	12AU7, ECC82	ECC82	12AU7	B329
E2164	...	6L13	EC83	12AX7, ECC83	ECC83	12AX7	B339, 12DT7
EA50	...	6D1	—	—	—	—	SD61
EABC80	...	6LD12	EABC80	EABC80	EABC80	6AK8	DH719, 6T8
EB34	...	—	—	6H6GT	EB34	6H6GT	—
EB91	...	6D2	EB91	EB91, 6AL5	EB91	6AL5	D77, D152, DD6
EBC41	...	6LD3	EBC41	EBC41	EBC41	6CV7	62DDT, DH150, DH718
EBC81	...	6LD13	EBC80	EBC81	EBC81	6BD7A	—
EBC90	...	—	EBC90	6AT6	EBC90	6AT6	DH77
EBC91	...	—	—	6AV6	EBC91	6AV6	—
EBF80	...	—	EBF80	EBF80	EBF80	6N8	WD709, ZD152

Index		MAZDA		Brimar	European	American	Others
EBF89	...	6FD12	EBF89	EBF89	EBF89	6DC8	—
EC86	...	—	—	EC86	EC86	6CM4	—
EC88	..	—	—	EC88	EC88	6DL4	—
EC90	...	—	—	6C4	EC90	6C4	L77
EC91	...	6L34	EC91	—	EC91	6AQ4	—
EC92	...	—	EC92	—	EC92	—	—
EC97	...	—	—	EC97	EC97	6FY5	—
ECC32	...	—	—	6SN7GT	ECC32	6SN7GT	B65, 13D2
ECC81	...	—	ECC81	12AT7, ECC81	ECC81	—	B152, B309, E2157
ECC82	...	—	ECC82	12AU7, ECC82	ECC82	12AU7	B329, E2163
ECC83	...	6L13	ECC83	12AX7, ECC83	ECC83	12AX7	B339, 12DT7, E2164
ECC84	...	6L16	ECC84	ECC84	ECC84	6CW7	—
ECC85	...	6L12	ECC85	ECC85	ECC85	6AQ8	B719
ECC88	...	—	—	ECC88	ECC88	6DJ8	—
ECC91	...	—	—	6J6	ECC91	6J6	—
ECC189	...	—	—	ECC189	ECC189	6ES8	—
ECC230	...	—	—	6080	ECC230	6080	—
ECC804	...	6/30L2	ECC804	ECC804	ECC804	6GA8	B729
ECC805	...	6L15	—	—	ECC805	—	—
ECC807	...	—	—	ECC807	ECC807	—	—
ECF80	...	6C16	ECF80	ECF80	ECF80	6BL8	—
ECF82	...	—	ECF82	ECF82	ECF82	6U8	—
ECF800	...	6C15	—	—	ECF800	—	—
ECF804	...	—	—	ECF804	ECF804	—	18D3
ECF805	...	6C18	—	—	ECF805	6GV7	—
ECH35	...	—	ECH35	6K8G	ECH35	6K8G	OM10, X61M, X65, X147
ECH42	...	6C10	ECH42	ECH42	ECH42	6CU7	X150, 62TH
ECH81	...	6C12	ECH81	ECH81	ECH81	6AJ8	X719
ECH84	...	—	ECH84	ECH84	ECH84	6JX8	—
ECL80	...	—	ECL80	ECL80	ECL80	6AB8	LN152, 63TP
ECL82	...	6PL12	ECL82	ECL82	ECL82	6BM8	—
ECL83	...	—	—	ECL83	ECL83	—	—
ECL85	...	—	—	—	ECL85	8GV8	—
ECL86	...	—	ECL86	ECL86	ECL86	6GW8	—
ECLL800	...	—	—	—	ECLL800	—	—
EE80	...	6F28	—	—	EE80	—	—

Index	MAZDA		Brimar	European	American	Others
EF41	6F16	EF41	EF41	EF41	6CJ5	62VP, W150
EF80	—	EF80	EF80	EF80	6BX6	Z152, Z719
EF85	6F26	EF85	EF85	EF85	6BY7	W719
EF86	6F22	EF86	EF86	EF86	6267	Z729
EF89	—	EF89	EF89	EF89	6DA6	—
EF91	6F12	EF91	8D3, 6AM6, EF91	EF91	6AM6	5A/160H, 5A/160K, Z77, PM07, HP6, SP6
EF92	—	—	9D6, EF92	EF92	6CQ6	W77, VP6, 6F21
EF93	—	—	6BA6, EF93	EF93	6BA6	PM04, W727
EF94	—	—	6AU6	EF94	6AU6	—
EF95	—	—	6AK5, EF95	EF95	6AK5	DP61, PMO5
EF183	6F29	EF183	EF183	EF183	6EH7	—
EF184	6F30	EF184	EF184	EF184	6EJ7	—
EF804	—	—	EF804	EF804	—	—
EF811	6F25	—	—	EF811	—	—
EF812	6F23	—	—	EF812	6EL7	Z749
EF814	6F24	—	—	EF814	—	—
EH90	—	EH90	EH90	EH90	6CS6	—
EK90	—	—	6BE6, EK90	EK90	6BE6	HM04, X77, X727
EL33	—	—	6AG6G, EL33	EL33	6AG6G	N147, KT61, OM9
EL34	—	—	EL34	EL34	6CA7	—
EL41	—	—	EL41	EL41	6CK5	N150, 67PT
EL84	6P15	EL84	EL84	EL84	6BQ5	N709
EL90	—	—	6AQ5, EL90	EL90	6AQ5	N727
EL91	—	—	6AM5	EL91	6AM5	N77, N144, 7D9, 6P17
EL95	—	EL95	—	EL95	6DL5	—
EL506	—	—	EL506	EL506	—	—
EL821	—	—	6CH6, EL821	EL821	6CH6	7D10
ELL80	—	ELL80	ELL80	ELL80	6HUS	—
EM34	—	EM34	—	EM34	—	64ME
EM35	6M2	—	—	EM35	—	—
EM71	—	—	EM71	EM71	—	—
EM80	—	EM80	—	EM80	6BR5	65ME
EM81	—	EM81	EM81	EM81	6DA5	—
EM84	—	EM84	EM84	EM84	6FG6	—
EM85	—	EM85	EM85	EM85	—	—

Index	MAZDA		Brimar	European	American	Others
EM87	—	EM87	EM87	EM87	6HU6	—
EM840	—	—	EM840	EM840	—	—
EN91	—	—	2D21	EN91	2D21	2OA3
EY51	—	EY51	R12, EY51	EY51	6X2	SU61, U43, U151
EY83	—	—	EY83	EY83	—	—
EY84	—	—	R18	EY84	—	—
EY86	—	EY86	EY86	EY86	6S2	—
EY87	—	EY87	EY87	EY87	6S2A	—
EZ35	—	—	6X5GT, EZ35	EZ35	6X5GT	U70, U147
EZ40	UU9	EZ40	EZ40	EZ40	6BT4	U150, U718
EZ80	—	EZ80	EZ80	EZ80	6V4	—
EZ81	UU12	EZ81	EZ81	EZ81	6CA4	U709
EZ90	—	—	6X4, EZ90	EZ90	6X4	U78
FC4	—	—	15A2	—	—	41MPG, A80A, X42, MX40, VHT4
GD150A/S	—	—	VR150/30	—	OD3	150C3
GZ30	—	—	5Z4G	GZ30	5Z4G	R52
GZ31	—	—	5U4G	GZ31	5U4G	U52
GZ32	—	—	—	GZ32	5AQ4	52KU
GZ34	—	—	GZ34	GZ34	5AR4	—
H4D	AC/HL/DD	—	—	—	—	—
HABC80	—	—	HABC80	HABC80	—	—
HAD	HL/DD/1320	—	11D3	—	—	13DHA, TDD13C
HBC90	—	—	12AT6	HBC90	12AT6	—
HBC91	—	—	12AV6	HBC91	12AV6	—
HD14	—	—	1H5GT	DAC32	1H5GT	—
HF93	—	—	12BA6	HF93	12BA6	—
HF94	—	—	12AU6	HF94	12AU6	—
HK90	—	—	12BE6	HK90	12BE6	—
HL4	AC/HL	—	—	—	—	—
HL13C	HL1320	—	4D1	—	—	C30B, DA
HL23	HL23	—	—	—	—	—
HL23DD	HL23DD	—	—	—	—	—
HL41	HL41	—	—	—	—	—
HL41DD	HL41DD	—	—	—	—	—
HL92	—	—	50C5	HL92	50C5	—

Index	MAZDA		Brimar	European	American	Others
HL133DD ...	HL133DD	—	—	—	—	—
HL1320 ...	HL1320	—	4D1	—	—	C30B, DA, HL13C
HLA1 ...	AC2/HL	—	—	—	—	—
HL/DD/1320	HL/DD/1320		11D3	—	—	13DHA, HAD, TDD13C
HMO4 ...	—	—	6BE6, EK90	EK90	6BE6	X77, X727
HP6 ...	6F12	EF91	8D3, 6AM6, EF91	EF91	6AM6	5A/160H, 5A/160K, PMO7, Z77, SP HP6
HP4101C ...	AC/SG	—	8A1	—	—	AC/S2/PEN, SPT4A, MSPEN, MSP
HR1 ...	—	—	R10	—	6305	HR2, 2T/270K
HR2 ...	—	—	R10	—	6304	HR1, 2T/270K
HY90 ...	—	—	HY90	HY90	—	—
IW3 ...	UU5	—	R2	—	—	1867, IW4–350, R42
IW4 ...	UU5	—	R3	—	—	IW4–500, R42
IW4–350 ...	UU5	—	R2	—	—	R42, 1867
IW4–500 ...	UU5	—	R3	—	—	43IU, MU14, R42
KD21 ...	—	—	VR75/30	—	OA3	—
KD24 ...	—	—	VR105/30	—	—	—
KT32 ...	—	—	25L6GT	—	25L6GT	—
KT41 ...	AC2/Pen	—	7A3	—	—	42MP/PEN, PEN4VB, N41, PENA4 PT4, APP4B, A70C
KT42 ...	AC/Pen	—	7A2	—	—	N40, P4VA, MKT4, MP/PEN, PEN4VA, A70B, APP4A
KT61 ...	—	—	6AG6G, EL33	EL33	6AG6G	N147, OM9
KT63 ...	—	—	6F6G	—	6F6G	—
KT66 ...	—	—	6L6G	—	6L6G	—
KT71 ...	—	—	50L6GT	—	50L6GT	—
KT88 ...	—	—	7D11	—	7D11	—
KTW63 ...	—	—	6K7G	—	6K7G	W63
KTW74M ...	—	—	12K7GT	—	12K7GT	W76
KTZ63 ...	—	—	6J7G	—	6J7G	Z63
KY50 ...	U25	—	—	KY50	2L2	U47
KY80 ...	U26	—	R20	KY80	2J2	U49
L2 ...	L2	—	—	—	—	—
L63 ...	—	—	6J5G	—	6J5G	—
L77 ...	—	—	6C4	EC90	6C4	—
LN119 ...	10PL12	UCL82	UCL82	UCL82	50BM8	—
LN152 ...	—	ECL80	ECL80	ECL80	6AB8	63TP
LN309 ...	—	PCL83	PCL83	PCL83	—	—

Index	MAZDA		Brimar	European	American	Others
LN319 ...	30PL1	—	—	PCL801	13GC8	LN319
LN329 ...	30PL14	—	—	PCL88	—	—
LN339 ...	30FL1	—	—	PCE800	9GB8	—
LP4 ...	PP3–250	—	—	—	—	4XP, ACO44, PX4, P12–250, S30C
LZ319 ...	30C1	PCF80	PCF80	PCF80	9A8	LZ329
LZ329 ...	30C1	PCF80	PCF80	PCF80	9A8	LZ319
LZ339 ...	30C15	—	—	PCF800	9EN7	—
ME41 ...	ME41	—	—	—	—	—
MH4 ...	AC/HL	—	—	—	—	—
MH41 ...	AC2/HL	—	—	—	—	—
MHD4 ...	AC/HL/DD	—	—	—	—	—
MKT4 ...	AC/Pen	—	7A2	—	—	A70B, APP4A, KT42, N40, P4VA, PEN4VA, MP/PEN
MM4V ...	AC/SG/VM	—	—	—	—	—
MP/PEN ...	AC/Pen	—	7A2	—	—	A70B, MKT4, APP4A, KT42, N40, P4VA, PEN4VA
MSP4 ...	AC/SG	—	8A1	—	—	AC/S2/PEN, SPT4A, MS/PEN, HP4101C
MS/PEN ...	AC/SG	—	8A1	—	—	HP4101C, AC/S2/PEN, MSP4, SPT4A
MU12 ...	UU5	—	R2	—	—	1867, IW4–350, R42
MU14 ...	UU5	—	R3	—	—	43IU, IW4–500
MVS/PEN ...	AC/VP1	—	—	—	—	—
MVSP/PEN/B	AC/VP2	—	—	—	—	—
MX40 ...	—	—	15A2	—	—	FC4, 41MPG, AS0A, VHT4, X42
N14 ...	—	—	1C5GT	DL35	1C5GT	—
N16 ...	—	—	3Q5GT	DL33	3Q5GT	—
N17 ...	1P10	DL92	DL92, 3S4	DL92	3S4	—
N18 ...	—	—	3Q4	DL95	3Q4	—
N19 ...	1P11	DL94	DL94, 3V4	DL94	3V4	—
N25 ...	1P1	DL96	DL96	DL96	3C4	—
N30 ...	—	—	7D5	—	—	PP13A, PTA
N40 ...	—	—	7A2	—	—	—
N41 ...	AC2/Pen	—	7A3	—	—	PENA4, PEN4VB, PT4, APP4B, A70C, 42MP/PEN, PT4
N77 ...	—	—	6AM5	EL91	6AM5	N144, 7D9, 16A, 6P17
N118 ...	10P13	—	—	—	—	N145
N119 ...	10P18	UL84	UL84	UL84	45B5	—
N142 ...	—	UL41	UL41	UL41	45A5	451PT
N144 ...	—	—	6AM5	EL91	6AM5	N77, 7D9, 16A, 6P17

Index	MAZDA		Brimar	European	American	Others
N145 ...	10P13	—	—	—	—	N11S
N147 ...	—	—	6AG6G, EL33	EL33	6AG6G	KT61, OM9
N148 ...	—	—	7C5	—	7C5	—
N150 ...	—	—	EL41	EL41	6CK5	67PT
N152 ...	—	PL81	PL81	PL81	21A6	N359
N154 ...	30P16	PL82	PL82	PL82	16A5	N329
N308 ...	30P4MR	—	—	—	25GF6	—
N329 ...	30P16	PL82	PL82	PL82	16A5	N154
N359 ...	—	PL81	PL81	PL81	21A6	N152
N369 ...	30P12	—	—	PL801	12FB5	N369
N379 ...	30P18	PL84	PL84	PL84	15CW5	—
N389 ...	30P19	PL302	PL302	PL302	—	—
N709 ...	6P15	EL84	EL84	EL84	6BQ5	—
N727 ...	—	—	6AQ5, EL90	EL90	6AQ5	BPM04
OM4 ...	—	—	6R7G	DL63	6R7G	DH147
OM9 ...	—	—	6AG6G, EL33	EL33	6AG6G	KT61, N147
OM10 ...	—	—	6K8G	ECH35	6K8G	X61M, X65, X147
See also figure 0						
P4VA ...	AC/Pen	—	7A2	—	—	MP/PEN, N40, PEN4VA, A70B, APP4A, KT42, MKT4
P12–250 ...	PP3–250	—	—	—	—	4XP, ACO44, LP4, PX4
P27–500 ...	PP5–400	—	—	—	—	DO24
P41 ...	P41	—	—	—	—	—
P61 ...	P61	—	—	—	—	—
PC86 ...	—	PC86	PC86	PC86	4CM4	—
PC88 ...	—	PC88	PC88	PC88	4DL4	—
PC97 ...	—	PC97	PC97	PC97	4FY5	—
PC900 ...	—	PC900	PC900	PC900	—	—
PCC84 ...	30L1	PCC84	PCC84	PCC84	7AN7	B319
PCC85 ...	—	—	PCC85	PCC85	9AQ8	—
PCC88 ...	—	—	PCC88	PCC88	7DJ8	—
PCC89 ...	—	PCC89	PCC89	PCC89	7FC7	—
PCC189 ...	—	PCC189	PCC189	PCC189	7ES8	—
PCC805 ...	30L15	—	—	PCC805	7EK7	—
PCC806 ...	30L17	PCC806	—	PCC806	—	—
PCE82 ...	30FL12	—	PCE82	PCE82	—	—

Index	MAZDA		Brimar	European	American	Others
PCE800 ...	30FL1	—	—	PCE800	9GB8	LN339
PCF80 ...	30C1	PCF80	PCF80	PCF80	9A8	LZ319, LZ329
PCF82 ...	—	PCF82	PCF82	PCF82	9U8	—
PCF86 ...	—	PCF86	PCF86	PCF86	8HG8	—
PCF87 ...	30C17	PCF87	—	PCF87	—	—
PCF800 ...	30C15	—	—	PCF800	9EN7	LZ339
PCF801 ...	—	PCF801	PCF801	PCF801	8GJ7	—
PCF802 ...	—	PCF802	PCF802	PCF802	9JW8	—
PCF805 ...	30C18	PCF805	—	PCF805	7GV7	—
PCF806 ...	—	PCF806	PCF806	PCF806	—	—
PCF808 ...	30FL14	PCF808	—	PCF808	—	—
PCL82 ...	30PL12	PCL82	PCL82	PCL82	16A8	—
PCL83 ...	—	PCL83	PCL83	PCL83	—	LN309
PCL84 ...	—	PCL84	PCL84	PCL84	15DQ8	—
PCL85 ...	—	PCL85	PCL85	PCL85	18GV8	—
PCL86 ...	—	PCL86	PCL86	PCL86	—	—
PCL88 ...	30PL14	—	—	PCL88	—	LN329
PCL800 ...	30PL13	—	—	PCL800	16GK8	—
PCL801 ...	30PL1	—	—	PCL801	13GC8	LN319
PES1 ...	30F27	—	—	PES1	—	—
PEN4VA ...	AC/Pen	—	7A2	—	—	P4VA, N40, A70B, APP4A, KT42, MP/PEN
PEN4VB ...	AC2/Pen	—	7A3	—	—	42MP/PEN, KT41, N41, PENA4, PT4, APP4B, A70C
PEN13C ...	Pen1340	—	7D8	—	—	—
Pen25 ...	Pen25	—	—	—	—	—
PEN36C ...	Pen383	—	7D6	—	—	C70D, PEN3520, PP35
Pen44 ...	Pen44	—	—	—	—	—
Pen45 ...	Pen45	—	—	—	—	—
Pen45DD ...	Pen45DD	—	—	—	—	—
Pen46 ...	Pen46	—	—	—	—	—
Pen220 ...	Pen220	—	—	—	—	PENB1, PM22A, PP2, PT2
Pen383 ...	Pen383	—	7D6	—	—	C70D, PEN3520, PP35, PEN36C
Pen1340 ...	Pen1340	—	7D8	—	—	PEN13C
PEN3520 ...	Pen383	—	7D6	—	—	C70D, PEN36C, PP35
PENA4 ...	AC2/Pen	—	7A3	—	—	PEN4VB, KT41, N41, PT4, APP4B, A70C, 42MP/PEN
PENB1 ...	Pen220	—	—	—	—	PM22A, PP2, PT2

Index	MAZDA	Brimar	European	American	Others
PF818	30F5	—	PF818	7ED7	Z329
PFL200	PFL200	PFL200	PFL200	—	—
PL36	PL36	PL36	PL36	25E5	—
PL81	PL81	PL81	PL81	21A6	N152, N359
PL81A	PL81A	PL81A	PL81A	—	—
PL82	30P16	PL82	PL82	16A5	N154, N329
PL83	—	PL83	PL83	15A6	—
PL84	30P18	PL84	PL84	15CW5	N379
PL302	30P19	PL302	PL302	—	N389
PL500	—	PL500	PL500	27GB5	—
PL801	30P12	—	PL801	12FB5	N369
PM84	—	PM84	PM84	—	—
PM04	—	6BA6	EF93	6BA6	W727
PM05	—	6AK5	EF95	6AK5	DP61
PM07	6F12	EF91	EF91	6AM6	SP6, HP6, Z77, 5A/160H, 5A/160K
PM22A	Pen220	—	—	—	PP2, PT2, PENB1
PP2	Pen220	—	—	—	PM22A, PT2, PENB1
PP3-250	PP3-250	—	—	—	4XP, ACO44, LP4, PX4, P12-250, S30C
PP5-400	PP5-400	—	—	—	P27-500, DO24
PP13A	—	—	7D5	—	N30, PTA
PP35	Pen383	—	7D6	—	C70D, PEN36C, PEN3520
PT2	Pen220	—	—	—	PP2, PENB1, PM22A
PT4	AC2/Pen	—	7A3	—	PEN4VB, KT41, PENA4, N41, APP4B, A70C, 42MP/PEN
PT4D	AC2/Pen/DD	—	—	—	DN41, DDPP4B
PT10	AC5/Pen	—	—	—	—
PTA	—	—	7D5	—	N30, PP13A
PX4	PP3-250	—	—	—	4XP, ACO44, LP4, P12-250
PY32	U291	PY32	PY32	PY32	—
PY33	—	PY33	PY33	—	—
PY81	—	PY81	PY81	17Z3	U153
PY82	U192	PY82	PY82	19Y3	19SU, U319, U154
PY83	—	PY83	PY83	—	—
PY88	—	PY88	PY88	30AE3	—
PY301	U191	—	PY301	19CS4	U339
PY800	—	PY800	PY800	—	—

Index	MAZDA	Brimar	European	American	Others
PY801	U193 PY801	PY801	PY801	—	U349
QP25	QP25	—	—	—	—
QP230	QP230	—	—	—	240QP
QV03-12	—	5763	—	5763	—
QV05-25	—	807	—	807	5B250A
QV06-20	—	6146	—	6146	—
R1	UU5	R1	—	—	506BU, U10
R2	UU5	R2	—	—	1W4-350, 1867, MU14, R42
R3	UU5	R3	—	—	1W4-500, 43IU, MU14
R4A	UU5	R3	—	—	DW4-500, 1561
R10	—	R10	—	6305	2T/270K, HR1, HR2
R11	—	R11	—	—	—
R12	— EY51	R12, EY51	EY51	6X2	SU61, U43, U151
R16	—	R16	—	1T2	U37
R17	—	R17	—	—	—
R18	—	R18	EY84	—	—
R19	—	R19	—	1X2B	—
R20	U26	R20	KY80	2J2	U49
R42	UU5	R2	—	—	43IU, 1867
R52	—	5Z4G	GZ30	5Z4G	—
RZ	U4020	1D5	—	—	C10B, UR1C
S30C	PP3-250	—	—	—	4XP, ACO44, LP4, PX4, P12-250
SD61	6D1	—	—	2B35	—
SP6	6F12 EF91	8D3, 6AM6, EF91	EF91	6AM6	PM07, Z77, 5A/160H, HP6, 5A/160K
SP13C	—	8D2	—	—	C50B, 13SPA
SP41	SP41	—	—	—	—
SP42	SP42	—	—	—	—
SP61	SP61	—	—	—	—
SPT4A	AC/SG	8A1	—	—	AC/S2/PEN, MS/PEN, MSP4, HP4101C
STV108-30	—	OB2	108C1	OB2	STV108-30
STV150-30	—	OA2	150C2	OA2	—
SU61	— EY51	R12, EY51	EY51	6X2	U43, U151
T4D	D1	—	—	—	—
T41	T41	—	—	—	—
TDD13C	HL/DD/1320	11D3	—	—	13DHA, HAD

Index		MAZDA		Brimar	European	American	Others
TH4A	...	ACTH1	—	—	—	—	TH4B
TH4B	...	ACTH1	—	—	—	—	TH4A
TH41	...	TH41	—	—	—	—	—
TH2321	...	TH2321	—	—	—	—	202STH, 302THA, C36B, C36C, C36A
TP4	...	AC/TP	—	—	—	—	—
TP22	...	TP22	—	—	—	—	—
TP25	...	TP25	—	—	—	—	—
U10	...	UU5	—	R1	—	—	506BU
U14	...	UU5	—	R3	—	—	1561, DW4–500
U21	...	U21	—	—	—	—	—
U22	...	U22	—	—	—	—	—
U24	...	U24	—	—	—	—	—
U25	...	U25	—	—	KY50	2L2	U47
U26	...	U26	—	R20	KY80	2J2	U49
U31	...	—	—	25Z4	—	25Z4	—
U37	...	—	—	R16	—	1T2	—
U43	...	—	EY51	R12, EY51	EY51	6X2	U151
U47	...	U25	—	—	KY50	2L2	U47
U49	...	U26	—	R20	KY80	2J2	U49
U50	...	—	—	5Y3GT	—	5Y3GT	—
U52	...	—	—	5U4G	GZ31	5U4G	—
U70	...	—	—	6X5GT, EZ35	EZ35	6X5GT	U147
U74	...	—	—	35Z4GT	—	35Z4GT	U76
U76	...	—	—	35Z4GT	—	35Z4GT	U74
U78	...	—	—	6X4, EZ90	EZ90	6X4	—
U82	...	—	—	7Y4	—	—	U149
U118	...	U404	—	—	—	—	U145
U119	...	U381	UY85	UY85	UY85	38A3	—
U142	...	—	UY41	UY41	UY41	31A3	311SU
U145	...	U404	—	—	—	—	—
U147	...	—	—	6X5GT, EZ35	EZ35	6X5GT	U70
U149	...	—	—	7Y4	—	—	U82
U150	...	UU9	EZ40	EZ40	EZ40	6BT4	66KU, U718
U151	...	—	EY51	R12, EY51	EY51	6X2	SU61, U43
U153	...	—	PY81	PY81	PY81	17Z3	—

Index		MAZDA		Brimar	European	American	Others
U154	...	U192	PY82	PY82	PY82	19Y3	19SU, U319
U191	...	U191	—	—	PY301	19CS4	U339
U192	...	U192	PY82	PY82	PY82	19Y3	19SU, U154, U319
U193	...	U193	PY801	PY801	PY801	—	U349
U201	...	U201	—	—	CY31	—	—
U251	...	U251	—	—	—	—	U329
U281	...	U281	—	—	—	—	—
U282	...	U282	—	—	—	—	—
U291	...	U291	PY32	PY32	PY32	—	—
U301	...	U301	—	—	CY30	—	—
U319	...	U192	PY82	PY82	PY82	19Y3	19SU, U154
U329	...	U251	—	—	—	—	—
U339	...	U191	—	—	PY301	19CS4	U339
U349	...	U193	PY801	PY801	PY801	—	—
U381	...	U381	UY85	UY85	UY85	38A3	U119
U404	...	U404	—	—	—	—	U118, U145
U709	...	UU12	EZ81	EZ81	EZ81	6CA4	—
U718	...	UU9	EZ40	EZ40	EZ40	6BT4	66KU
U801	...	U801	—	—	—	—	—
U4020	...	U4020	—	1D5	—	—	40SUA, C10B, RZ, UR1C
UABC80	...	10LD12	UABC80	UABC80	UABC80	—	DH109
UBC41	...	10LD3	UBC41	UBC41	UBC41	14L7	DH142, 141DDT, DH118
UBC81	...	10LD13	UBC81	UBC81	UBC81	—	DH119
UBF89	...	10FD12	UBF89	UBF89	UBF89	19FL8	WD119
UC92	...	—	UC92	—	UC92	—	—
UCC85	...	10L14	UCC85	UCC85	UCC85	—	B109
UCH42	...	—	UCH42	UCH42	UCH42	14K7	X142, 141TH
UCH81	...	10C14	UCH81	UCH81	UCH81	19D8	X119
UCL82	...	10PL12	UCL82	UCL82	UCL82	50BM8	LN119
UCL83	...	—	UCL83	UCL83	UCL83	—	—
UF41	...	—	—	UF41	UF41	12AC5	121VP, W142
UF80	...	—	—	UF80	UF80	—	—
UF89	...	—	UF89	UF89	UF89	—	—
UL41	...	—	UL41	UL41	UL41	45A5	451PT, N142
UL84	...	10P18	UL84	UL84	UL84	45B5	N119

Index	MAZDA	Brimar	European	American	Others
UM35	10M2	UM35	UM35	—	—
UM80	—	UM80	UM80	19BR5	—
UR1C	U4020	1D5	—	—	40SUA, C10B, RZ
UU3	UU3	R2	—	—	1867, IW4-350, MU12, R42
UU4	UU4	R2	—	—	1867, IW4-350, MU12, R42
UU5	UU5	R3	—	—	431U, MU14, IW4-500
UU6	UU6	—	—	—	—
UU7	UU7	—	—	—	—
UU8	UU8	—	—	—	—
UU9	UU9	EZ40	EZ40	6BT4	U150, U718
UU12	UU12	EZ81	EZ81	6CA4	U709
UU60/250	UU5	R2	—	—	1867, R42, IW4-350
UU120/350	UU5	R2	—	—	1867, R42, IW4-350, MU14
UU120/500	UU5	R3	—	—	DW4-500, 1561
UY41	—	UY41	UY41	31A3	U142, 311SU
UY85	U381	UY85	UY85	38A3	U119
VFT6	6M1	6U5G	—	6U5G	6G5G, 6H5, VFT6, Y61, Y63
VHT4	—	15A2	—	—	FC4, 41MPG, A80A, MX40, X42
VP4	AC/VP1	—	—	—	VP4A
VP4A	—	—	—	—	VP4
VP6	—	9D6, EF92	EF92	6CQ6	W77, E2016, 6F21
VP13C	VP1322	9D2	—	—	13VPA, C50N
VP23	VP23	—	—	—	—
VP41	AC/VP2	—	—	—	—
VP133	VP133	—	—	—	—
VP210	VP210	—	—	—	VPT2, 210VPT
VP1322	VP1322	9D2	—	—	13VPA, VP13C
VPT2	VP210	—	—	—	210VPT
VPT4B	AC/VP1	—	—	—	—
VR75/30	—	VR75/30	—	OA3	KD21
VR105/30	—	VR105/30	—	OC3	KD24
VR150/30	—	VR150/30	—	OD3	GD150A/S, 150C3
W17	1F3	1T4, DF91	DF91	1T4	—
W25	1F1	DF96	DF96	1AJ4	—
W42	AC/VP2	—	—	—	—

Index	MAZDA	Brimar	European	American	Others
W63	—	6K7G	—	6K7G	KTW63
W76	—	12K7GT	—	12K7GT	KTW74M
W77	—	9D6, EF92	EF92	6CQ6	VP6, E2016, 6F21
W81	—	7H7	—	7H7	W143, W148
W118	10F9	—	—	—	W145
W119	10F18	—	—	13EC7	—
W142	—	UF41	UF41	12AC5	121VP
W143	—	7H7	—	7H7	W81, W148
W145	10F9	—	—	—	W118
W148	—	7H7	—	7H7	W81, W143
W149	—	7B7	—	—	—
W150	6F16	EF41	EF41	6CJ5	62VP
W719	6F26	EF85	EF85	6BY7	—
W727	—	6BA6	EF93	6BA6	PM04
W739	6F18	—	—	6EC7	—
WD119	10FD12	UBF89	UBF89	19FL8	—
WD709	—	EBF80	EBF80	6N8	ZD152
X14	—	1A7G	DK32	1A7G	—
X17	1C1	DK91	DK91	1R5	—
X20	1C2	DK92	DK92	1AC6	—
X25	1C3	DK96	DK96	1AB6	—
X42	—	15A2	—	—	VHT4, FC4, 41MPG, A80A, MX40
X61M	—	ECH35	ECH35	6K8G	OM10, X65, X147
X63	—	6A8G	—	6A8G	—
X65	—	ECH35	ECH35	6K8G	OM10, X61M, X147
X71M	—	12K8GT	—	12K8GT	X76M
X76M	—	12K8GT	—	12K8GT	X71M
X77	—	6BE6, EK90	EK90	6BE6	HM04, X727
X81	—	7S7	—	—	X148
X118	10C1	—	—	—	X145
X119	10C14	UCH81	UCH81	19D8	—
X142	—	UCH42	UCH42	14K7	141TH
X145	10C1	—	—	—	X118
X147	—	ECH35	ECH35	6K8G	OM10, X61M, X65
X148	—	7S7	—	—	X81

VALVE EQUIVALENTS

Index	MAZDA		Brimar	European	American	Others
X150	6C10	ECH42	ECH42	ECH42	6CU7	62TH
X719	6C12	ECH81	ECH81	ECH81	6AJ8	—
X727	—	—	6BE6, EK90	EK90	6BE6	HM04, X77
Y25	1M1	DM71	—	DM71	1N3	—
Y61	6M1	—	6U5G	—	6U5G	6G5G, Y63, 6H5, 63ME, VFT6
Y63	6M1	—	6U5G	—	6U5G	6G5G, Y61, 6H5, 63ME, VFT6
Z14	—	—	1N5GT	DF33	1N5GT	—
Z63	—	—	6J7G	—	6J7G	KTZ63
Z77	6F12	EF91	SD3	EF91	6AM6	SP6, PM07, 5A/160H, 5A/160K, HP6
Z145	10F1	—	—	—	—	—
Z152	—	EF80	EF80	EF80	6BX6	Z719
Z329	30F5	—	—	PF818	7ED7	Z329
Z719	—	EF80	EF80	EF80	6BX6	Z152
Z729	6F22	EF86	EF86, 6267	EF86	6267	—
Z749	6F23	—	—	EF812	6EL7	—
ZD17	1FD9	DAF91	1S5	DAF91	1S5	—
ZD25	1FD1	DAF96	DAF96	DAF96	1AH5	—
ZD152	—	EBF80	EBF80	EBF80	6N8	WD709

PICTURE TUBE EQUIVALENTS

Index	MAZDA		Brimar	European	Others
17CVP4	—	—	C17AA	AW43–88	C17/7A, 17CVP4
7204A	CRM144	—	C14FM	—	7204A
7205A	CME1402	—	—	—	7205A
7404A	CRM172	—	—	—	7404A
7405A	CME1703	—	—	—	7405A
7406A	CME1705	—	—	—	7406A
7502A	CRM212	—	C21TM	—	7502A
7503A	CME2101	—	—	—	7503A
7601A	CME1901	—	—	AW47–97	7601A
7701A	CME2301	—	—	AW59–95	7701A
A31–18W	CME1201	—	—	A31–18W	—
A40–11W	CME1601	—	—	A40–11W	—
A47–13W	CME1906	A47–13W	A47–13W	A47–13W	C19/10AP
A47–14W	CME1908	A47–14W	—	A47–14W	—
A47–17W	CME1905	—	—	A47–17W	—
A59–12W	CME2305	—	—	A59–12W	—
A59–13W	CME2306	A59–13W	A59–13W	A59–13W	C23/10AP
A59–14W	CME2307	—	C23AKT	A59–14W	—
A59–15W	CME2308	A59–15W	—	A59–15W	—
A65–11W	CME2501	A65–11W	—	A65–11W	—
AW36–20	—	—	C14PM	AW36–20	SE14/70, C14/3A
AW43–88	—	—	C17AA	AW43–88	17CVP4, C17/7A
AW47–90	CME1902	AW47–90	C19AK	AW47–90	C19/7A
AW47–91	CME1903	AW47–91	AW47–91	AW47–91	C19/10A
AW47–97	CME1901	—	—	AW47–97	7601A
AW53–88	—	—	C21AA	AW53–88	C21/7A
AW59–90	CME2302	AW59–90	C23AK	AW59–90	C23/7A
AW59–91	CME2303	AW59–91	—	AW59–91	C23/10A
AW59–95	CME2301	—	—	AW59–95	7701A
C9A	CRM92	—	C9A	—	—
C12A	CRM121	—	C12A	—	—
C12B	—	—	C12B	—	—
C12D	—	—	C12D	—	—
C12FM	—	—	C12FM	—	—
C14/3A	—	—	C14PM	AW36–20	C14/3A, SE14/70

Index	MAZDA		Brimar	European	Others
C14BM	—	—	C14BM	—	—
C14FM	CRM144	—	C14FM	—	—
C14LM	—	—	C14LM	—	—
C14PM	—	—	C14PM	AW36-20	C14/3A, SE14/70
C17/7A	—	—	C17AA	AW43-88	17CVP4, C17/7A
C17AA	—	—	C17AA	AW43-88	C17/7A, 17CVP4
C17AF	—	—	C17AF	—	—
C17BM	—	—	C17BM	—	—
C17FM	CRM174	—	C17FM	—	—
C17LM	—	—	C17LM	—	—
C17PM	—	—	C17PM	—	SE17/70
C17SM	—	—	C17SM	—	—
C19/7A	CME1902	AW47-90	C19AK	AW47-90	C19/7A
C19/10A	CME1903	AW47-91	AW47-91	AW47-91	C19/10A
C19/10AP	CME1906	A47-13W	A47-13W	A47-13W	C19/10AP
C19AH	—	—	C19AH	—	—
C19AK	CME1902	AW47-90	C19AK	AW47-90	C19/7A
C21/7A	—	—	C21AA	AW53-88	C21/7A
C21AA	—	—	C21AA	AW53-88	—
C21AF	—	—	C21AF	—	—
C21HM	—	—	C21HM	—	—
C21KM	—	—	C21KM	MW53-80	—
C21NM	—	—	C21NM	—	—
C21SM	—	—	C21SM	—	—
C21TM	CRM212	—	C21TM	—	7502A
C23/7A	CME2302	AW59-90	C23AK	AW59-90	C23/7A
C23/10A	CME2303	AW59-91	—	AW59-91	C23/10A
C23/10AP	CME2306	A59-13W	A59-13W	A59-13W	C23/10AP
C23AG	—	—	C23AG	—	—
C23AK	CME2302	AW59-90	C23AK	AW59-90	C23/7A
C23AKT	CME2307	—	C23AKT	A59-14W	—
C24KM	—	—	C24KM	MW61-80	—
CME141	CME141	—	—	—	—
CME1101	CME1101	—	—	—	—
CME1201	CME1201	—	—	A31-18W	—

Index	MAZDA		Brimar	European	Others
CME1402	CME1402	—	—	—	7205A
CME1601	CME1601	—	—	A40-11W	—
CME1702	CME1702	—	—	—	—
CME1703	CME1703	—	—	—	7405A
CME1705	CME1705	—	—	—	7406A
CME1901	CME1901	—	—	AW47-97	7601A
CME1902	CME1902	AW47-90	C19AK	AW47-90	C19/7A
CME1903	CME1903	AW47-91	AW47-91	AW47-91	C19/10A
CME1905	CME1905	—	—	A47-17W	—
CME1906	CME1906	A47-13W	A47-13W	A47-13W	C19/10AP
CME1908	CME1908	A47-14W	—	A47-14W	—
CME2101	CME2101	—	—	—	7503A
CME2104	CME2104	—	—	—	—
CME2301	CME2301	—	—	AW59-95	7701A
CME2302	CME2302	AW59-90	C23AK	AW59-90	C23/7A
CME2303	CME2303	AW59-91	—	AW59-91	C23/10A
CME2305	CME2305	—	—	A59-12W	—
CME2306	CME2306	A59-13W	A59-13W	A59-13W	C23/10AP
CME2307	CME2307	—	C23AKT	A59-14W	—
CME2308	CME2308	A59-15W	—	A59-15W	—
CME2501	CME2501	A65-11W	—	A65-11W	—
CRM71	CRM71	—	—	—	—
CRM91	CRM91	—	—	—	—
CRM92	CRM92	—	C9A	—	—
CRM92A	CRM92A	—	—	—	—
CRM93	CRM93	—	—	—	—
CRM121	CRM121	—	C12A	—	—
CRM121A	CRM121A	—	—	—	—
CRM121B	CRM121B	—	—	—	—
CRM122	CRM122	—	—	—	—
CRM123	CRM123	—	—	—	—
CRM124	CRM124	—	—	—	—
CRM141	CRM141/142		—	—	—
CRM142	CRM141/142		—	—	—
CRM143	CRM143	—	—	—	—

PICTURE TUBE EQUIVALENTS

Index	MAZDA	Brimar	European	Others
CRM144 ...	CRM144 —	C14FM	—	7204A
CRM151 ...	CRM151 —	—	—	—
CRM152 ...	CRM152 —	—	—	—
CRM152A ...	CRM152A —	—	—	—
CRM152B ...	CRM152B —	—	—	—
CRM153 ...	CRM153 —	—	—	—
CRM171 ...	CRM171 —	—	—	—
CRM172 ...	CRM172 —	—	—	7404A
CRM173 ...	CRM173 —	—	—	—
CRM211 ...	CRM211 —	—	—	—
CRM212 ...	CRM212 —	C21TM	—	7502A
MW53-80 ...	— —	C21KM	MW53-80	—
MW61-80 ...	— —	C24KM	MW61-80	—
SE14/70 ...	— —	C14PM	AW36-20	SE14/70, C14/3A
SE17/70 ...	— —	C17PM	—	SE17/70

MAZDA GUARANTEES

VALVES	PICTURE TUBES	SEMICONDUCTORS
3 months	24 months*	12 months

Mazda valves, picture tubes and semiconductors are guaranteed by Thorn-AEI Radio Valves and Tubes Limited against faulty material or manufacturing defects for the above periods from the date of installation.

No other guarantee or warranty is given or implied. This guarantee covers operation only within the manufacturers' published rating and does not cover misuse, consequential or accidental damage, or loss or injury however arising.

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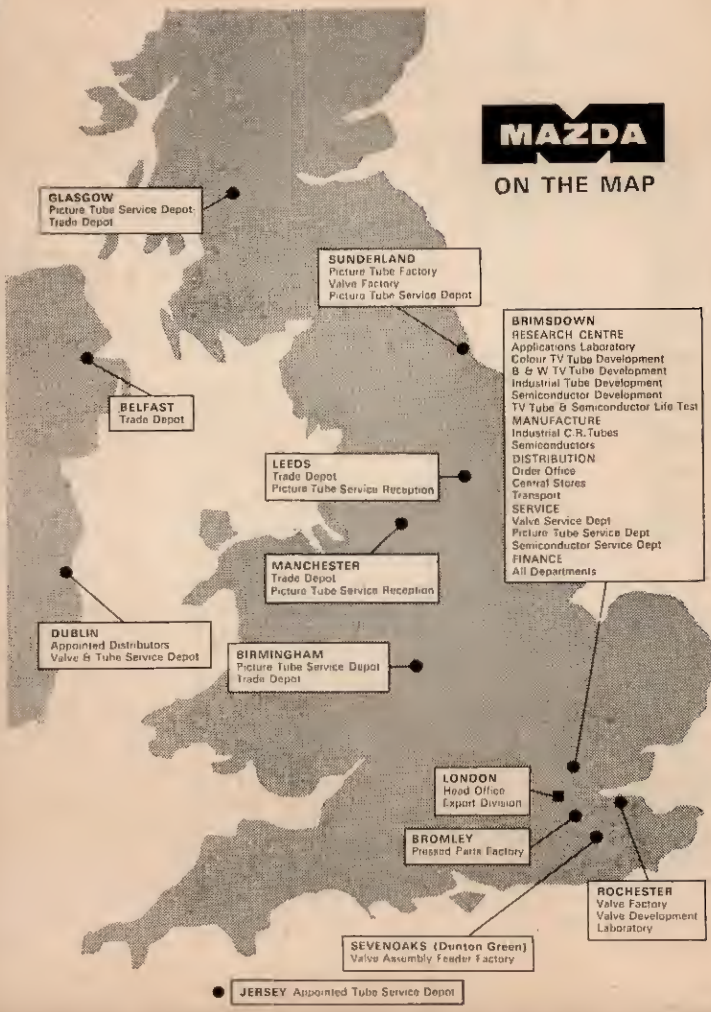
* Effective on all Mazda picture tubes with guarantee cards previously stamped by Mazda Guarantee Registry with a date on or after 1st January, 1965.



DEALERS

SAVE TIME FOR YOUR CUSTOMERS

THE SERVICE DEPOTS

OF

THORN–AEI RADIO VALVES AND TUBES LTD.

*DO **NOT** HANDLE THE PRODUCTS OF*

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To avoid delays and inconvenience to service customers please remember that Thorn–AEI Service Departments are equipped to handle **only Valves, Tubes and Semiconductors which are products of the company THORN–AEI RADIO VALVES & TUBES LTD.**

MAZDA

RESEARCH CENTRES

Brimsdown

Colour TV Tube Development Laboratory
Black and White TV Tube Development Laboratory
Industrial Tube Development Laboratory
Semiconductor Development Laboratory
Picture Tube Life Testing Department
Semiconductor Life Testing Department
APPLICATIONS LABORATORY (for all devices)

Rochester

Valve Development Laboratory
Valve Life Testing Department

MAZDA

TRADE TECHNICAL LIAISON

MAZDA REPRESENTATIVES

Mazda Valve Representatives are active throughout The British Isles and Eire calling on radio wholesalers and retailers. Although Mazda do not operate Retailer Accounts, the Mazda Representatives endeavour to maintain close liaison with Dealers' service departments.
Retailers who would like to receive a visit from their Mazda Valve Representative are invited to write or telephone to the address below.

MAZDA TECHNICAL LIAISON OFFICER

The Mazda T.L.O. is available to trade service departments to investigate any serious complaints of a repetitive nature involving Mazda valves or picture tubes.
Retailers wishing to use this service must collect some factual evidence before an investigation can start.

e.g. Valve or Tube Type
Set make and model
Description of failure
Percentage of such failures
Quantity of the particular model maintained
Samples of failed valves

An investigation may then be requested via the Mazda Valve Representative or in writing direct to the address on this page. The Mazda T.L.O. will collect and analyse the evidence, confer with the Mazda and setmaker laboratories, factories and service departments and recommend corrective action.

MAZDA MAINTENANCE SALES DEPARTMENT
Thorn-AEI Radio Valves & Tubes Ltd,
7 Soho Square, London, W.1. Telephone: GERrard 5233

MAZDA

SERVICE DEPOTS

for examination of guarantee claims

VALVES & SEMICONDUCTORS	**All U.K.**	MAZDA VALVE SERVICE, Brimsdown, Enfield, Middlesex	Tel.: HOWard 1201
	Eire	*Appointed service depot for Mazda* Kelly & Sheil, Ltd., United Works, Distillery Road, Dublin, N.E.2	Tel.: Dublin 371621
PICTURE TUBES	**London**	MAZDA CRT SERVICE Brimsdown, Enfield, Middlesex	Tel.: HOWard 1201
	Birmingham	MAZDA CRT SERVICE 24 Sheepcote Street, Birmingham, 15	Tel.: B'ham MIDland 5291
	Glasgow	MAZDA CRT SERVICE 517 Lawmoor Street, Glasgow, C.5	Tel.: Glasgow SOUth 5151
	Leeds	*CRT Reception only* MAZDA WHOLESALER DEPOT 3 Ring Road, Lower Wortley, Leeds, 2	Tel.: Leeds 630441
	Manchester	*CRT Reception only* MAZDA WHOLESALER DEPOT Thorn House, Derby Street, Cheetham, Manchester, 8	Tel.: DEAnsgate 2499
	Sunderland	MAZDA CRT SERVICE Thorn-AEI Factory A, Pallion New Road, Sunderland	Tel.: Sunderland 70401
	Channel Islands	*Appointed CRT service depot for Mazda* J. J. Eastick & Sons, Ltd., St. Helier, Jersey	Tel.: Jersey Central 22901
	Eire	*Appointed service depot for Mazda* Kelly & Sheil, Ltd., United Works, Distillery Road, Dublin, N.E.2	Tel.: Dublin 371621

PURCHASE TAX 25%

Applicable within the United Kingdom only

Valve List Price	Tax	Total £ s. d.	Valve List Price	Tax	Total £ s. d.	Valve List Price	Tax	Total £ s. d.	Valve List Price	Tax	Total £ s. d.
7/–	1/2	8 2	11/–	1/10	12 10	15/–	2/6	17 6	20/–	3/3	1 3 3
7/6	1/3	8 9	11/6	1/11	13 5	16/–	2/8	18 8	21/–	3/5	1 4 5
8/–	1/4	9 4	12/–	2/–	14 0	16/6	2/9	19 3	21/6	3/6	1 5 0
8/6	1/5	9 11	12/6	2/1	14 7	17/–	2/10	19 10	22/6	3/8	1 6 2
9/–	1/6	10 6	13/–	2/2	15 2	17/6	2/11	1 0 5	24/–	4/–	1 8 0
9/6	1/7	11 1	13/6	2/3	15 9	18/–	3/–	1 1 0	25/–	4/1	1 9 1
10/–	1/8	11 8	14/–	2/4	16 4	18/6	3/1	1 1 7	27/6	4/6	1 12 0
10/6	1/9	12 3	14/6	2/5	16 11	19/–	3/2	1 2 2	30/–	4/11	1 14 11
									35/–	5/9	2 0 9

This table, together with the List Prices printed on Mazda valve cartons, will enable the outside engineer to price up jobs at the customer's premises. The table is valid for the 25% rate of purchase tax only, which was applicable at the time of going to press.

Valves & Picture Tubes

THORN - AEI RADIO VALVES & TUBES LTD · 7 SOHO SQUARE LONDON W1 GERrard 5233